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A CONSIDERATION OF ONE HUNDRED AND NINETY CHEST INJURIES.

ARTHUR M. SHIPLEY, M.D., F.A.C.S.,
BALTIMORE, MD.

This paper is a report of one hundred and ninety chest injuries treated at Evacuation Hospital No. 8 during the Argonne offensive. It includes only those patients in whom there was a penetrating or perforating wound into the thorax. It must be remembered that all of the wounded were picked men, young and in fine physical condition.

Evacuation Hospital No. 8 was a large outfit and these men came under the care of different surgeons, many of whom are well known. There was considerable difference of opinion as to the proper procedure in looking after these chest wounds and the treatment was therefore varied.

In chest surgery the operators in the zone of the advance were roughly divided into two groups—radicals and conservatives. I saw little of British casualty clearing stations and cannot speak of them. The French were, for the most part, radical. Many of their leading men were quite radical. I heard both Tuffier and Duval discuss the subject and saw Chutro and Robin operate. The Americans were largely conservative, but a number of our surgeons were quite as radical as the French.

There was never any unanimity of opinion among us as to the best methods of procedure, and there is not much agreement even now. Not only did surgeons differ as to whether certain chest injuries should be operated upon or not, but there was also much difference of opinion as to the proper time to operate. Immediate operation had its advocates, delayed operation its advocates as well, and a great many surgeons were opposed to any operation in most instances. There were a number of things that complicated the question very much. One was the time that had elapsed between the receipt of injury and the soldier's admission to the evacuation hospital. This was, with us, rarely less than ten hours, more often about sixteen hours and often longer, so that if there were any considerable laceration of the chest wall, the wound would be heavily infected and this would, of course, seriously interfere with primary union if a major thoracotomy were done. In order to check up the operating-room technique and keep informed as to the degree and kind of infection, we ran, every few days, a series of one hundred cultures from wounds when they first entered the operating room and before anything was done. These averaged 40% streptococcus, and the cultures from practically all wounds would grow an anaerobe.

Another difficulty was the number of multiple injuries, in which one wound was of the chest. This very often complicated the treatment. Several of the fatal cases had an injury of the spinal cord. In a number of cases both the abdomen and chest were penetrated. Gas gangrene of the chest wall was another serious difficulty. Hemothorax was practically always present, and severe hemothorax with low blood pressure and surgical shock created a difficult problem. It was hard to decide whether or not the hemorrhage was still active. Here transfusion was contraindicated as it usually raised the blood pressure and increased the hemothorax. The same thing was true of saline infusion.

Dr. Howard Lilienthal of New York, who spent considerable time with us as head of a surgical team, has called attention to a very disappointing phenomenon. On many of our fatal cases an autopsy was performed, and in a certain number of them there was found pneumonia of the opposite lung. One thinks at once that this was due to aspiration caused by the anesthetic, but the pneumonia was seen in men who were operated upon under local anesthesia and was also seen where no operation was performed.

Shock was a most important matter. I am sure that we saved quite a number of our cases by treating the shock before treating the injury. It must be remembered that during the Argonne offensive it rained every day and the nights were cold. A wounded man often lay out for hours before he was picked up, and there were many difficulties and delays in the transportation back to the evacuation hospitals. These men came in wet and cold and hungry, in addition to being wounded and often exsanguinated. So it can be seen how important was the matter of shock. We had two shock tents of thirty beds each, and during active times these were filled. We were guided almost entirely by the blood pressure as to

whether a man was a proper operative risk. If his blood pressure was below 90, we learned he would scarcely stand operation except for hemorrhage and then only if transfused.

The chest cases with low blood pressure were put in the shock ward and treated there. If the blood pressure arose above 90, they would be sent to the operating room. If the blood pressure continued to fall or held stationary, operation, if done, was usually followed by a prompt fatality. So, after a while, we did not operate upon these cases except for sucking wounds or active bleeding.

In order to simplify these problems we were in the habit of dividing chest injuries into different groups. All cases went through the *x*-ray room, and the roentgenological report was very helpful in the classification.

A number of wounded men had an injury of the chest wall only, without any penetration into the thorax. If the pleural cavity had not been opened, these were excluded from this chest group and the wound was treated by débridement as would any wound of the soft parts and bone elsewhere.

A number of men suffering with chest injuries came in with so-called "sucking wounds" where there was free movement of air into and out of the thorax at each respiration. These men were always in serious condition; they were cyanotic, very dyspneic, had a rapid, irregular pulse of low tension, and were very anxious and uncomfortable. Plugging the opening or closing it with sutures was followed almost immediately by marked improvement.

A very serious group that required early and radical operation was composed of men with extensive wounds of the chest wall, including a penetrating or perforating wound into the thorax. This became all the more urgent if the missile ranged downward to the diaphragm. Very often the scapula would be injured and practically always one or more ribs. If the wound were caused by shell fragments, clothing would usually be carried in and these bits of clothing were reeking with infection. Nothing was gained by temporizing with these wounds either in time or thoroughness of operation. A very radical débridement of the chest wall was indicated, having especial care to remove bone fragments which often further injured the lung or pleura. Whether to operate upon the lung at the same time was always an open question. Much can be said either way. It was most essential to get the pleura as dry as possible and to close it tightly, in order to prevent mediastinal flapping caused by a "sucking wound."

Another group was made up of those who had a large piece of shell casing in the lung, but without extensive injury to the chest wall. Here the missile went straight in. There would be hemothorax, and it was always a matter of uncertainty as to whether there was still active bleeding or not. I think there was more difference of opinion as to just what should be done with these cases than any other group treated in the evacuation hospitals.

It seemed rational to perform a major thoracotomy, remove the foreign body, suture the bleeding lung, dry the pleura, and close the chest wall. The difficulty was not in the operation, but in the results, and the determining factor was infection of the wound in the chest wall, bearing in mind the lapse of time before operation and the virulent organisms present in practically all wounds. If it had been feasible to leave the wound open, the question of infections would not have been so serious. But "sucking wounds" had to be avoided at all costs.

Then there was another group about which there was still some difference of opinion, but here most surgeons agreed. These were men with penetrating or perforating machine gun or rifle bullets and with single or multiple penetrating wounds made by small pieces of shell casing. Here there was a small wound of the chest wall, without laceration and no "sucking". Almost always there was hemothorax. I am quite sure that these did best if not operated upon early.

In the early days of my experience, I had taken care of one hundred French wounded three days after being hurt. They had passed through a French evacuation hospital. Twenty-five of them had chest wounds. Three only had been submitted to a major thoracotomy. They were all in surprisingly good condition, and they made a strong impression on me.

During the Argonne offensive, 190 injuries of the thorax were admitted to Evacuation Hospital No. 8. Of these 25 died in the shock ward unoperated because they could not be gotten in condition to warrant operation. Forty-three had a major thoracotomy done with some operation upon the lung. One of these had a wound of the pericardium as well. In this group, there were 27 deaths—63% mortality. Forty had extensive chest wall débridement, often with the pleura open, but no operation was done on the lung. There were 16 deaths in this group—a mortality of 40%. Many of these wounds had been sucking ones. The next group were not operated. They were composed of penetrating or perforating bullet wounds, or penetrating wounds made by

smaller pieces of shell casing. There were 82 in this group with 7 deaths—a mortality of 8½%.

The war has had a decided influence on chest surgery. While no new principles were brought forward, many phases of the subject have been studied and the great bulk of clinical material has helped to clarify a number of points.

The anesthesia has been greatly simplified. No cumbersome apparatus is needed. The pressure from a gas tank is all that is required to keep the lung distended. Ether can be used entirely satisfactorily. Dr. Lilienthal, when with us, rigged up a very simple outfit for giving ether in chest surgery by the use of a dentist's foot pump and an atomizer. By either of these methods the lung could be distended or allowed to collapse at will, and it did not seem necessary to measure the pressure. The operator could judge the necessary pressure by observing the lung.

There was some controversy about the method of approach as between rib resection and incision into the thorax between the ribs. The latter method required a rib retractor. It was very much easier to close the chest if ribs were not resected. All that was necessary was to suture the contiguous ribs together with strong catgut. This usually obviated the suturing of the pleura. My observations convinced me that suturing of the pleura after a major thoracotomy is very often a difficult and, at times, an impossible procedure.

The presence of hemothorax makes localization for removal of foreign bodies in the lung very misleading at times. A large hemothorax would press the lung out of its normal position, and the *x*-ray reading would locate a piece of metal. As soon as the chest was opened and the blood removed the lung would occupy a different position and the foreign body be nowhere near the point it had been located. This was often very confusing. Dr. Alleman, the *x*-ray officer, overcame this in delayed operations by making a roentgenogram before and after aspiration.

LUNG ABSCESS.

Acute cases of the mild type, according to most writers of experience, may be treated expectantly in the hope that drainage through the bronchus may effect a cure. These cases are such as most often follow pneumonia of a mild type, and even in these it should be understood that the presence of pus in the bronchial tree is a constant menace to other portions of the lung. In general the mortality in cases of abscess treated expectantly has been from 70 to 90 per cent.— C. A. HEDBLOM in *Minnesota Medicine*.

PRE-OPERATIVE, OPERATIVE AND POST-OPERATIVE CARE OF THE PATIENT.

E. M. MIERS, M.D.,
KANSAS CITY, MISSOURI.

Despite the enormous number of surgical interventions that are now daily undertaken, and the ever-increasing variety of conditions for the relief of which the surgeon's services are sought, the fact remains that to the ears of most people outside the medical profession the word "operation" has a very ominous sound. It therefore behooves the surgeon to consider the mental attitude of the patient who has been confided to his skill, and to include in the preparations for operation those psychic influences that are best calculated to bring the patient to a state of mental equilibrium comparable to the thorough physical balance which every careful operator endeavors to have set up in each subject before he enters the operating room. If the patient seems excessively apprehensive over the outcome—when perhaps a relative or friend has died or been left an invalid under similar conditions—the tactful surgeon will do all in his power to dispel unnecessary fear, and make the prognosis as optimistic as possible, but, on the other hand, it is most unwise to conceal a grave danger that really exists. The situation is often one calling for as nice judgment and discrimination as is ever exercised in the operating room, and many a surgeon who is unerring with the scalpel has blundered sadly when confronted by it.

Nothing can so well harmonize both body and mind as sleep, and therefore it is imperative that the patient should sleep well the night prior to the operation, so that he will be refreshed and in condition to undergo what to him seems a trying ordeal. It is not sufficient for him to merely rest, and the more serious the condition, the greater the necessity for deep profound sleep, even if morphine has to be administered to produce it.

We deem it very inadvisable to place patients on a starvation diet either before or after the operation, or to purge or cause any unnecessary muscular or physical exhaustion. As a short period of abstinence from food is necessary immediately before and after the surgical intervention, I prepare my patients by giving them plenty of sugar in the form of candy the day before, and with all the water they are able to take. Other diet is liquid, and alkalies are likewise administered. It is my belief that carbohydrates in the form of simple sugars can be advantageously given just prior to an operation, as they supply energy for the musculature which will be more or less de-

pleted during the enforced starvation of the operative period, and as they easily undergo oxidation in the body, serve to keep up the constant body heat and are especially valuable in replacing bodily waste.

If a cathartic is needed it is given several days before the operation and time enough is allowed for the bowels to return to normal, with a restoration of the intestinal flora which are necessarily washed out by the use of a strong cathartic. If necessary, enemas are given the night preceding operation. If the organs are functioning normally, the usual condition of shock and exhaustion can be greatly ameliorated. Doubtless all surgeons observed that the subjects of emergency operations, such as acute appendicitis cases, get along better than those who have gone through an exhaustive course of pre-operative "preparation".

CONTRAINDICATIONS.

Diabetes. The presence of sugar in the urine is a distinct danger signal and a contraindication for all surgical interference, as diabetic coma, is likely to follow any operation that may be undertaken. When diabetes is present tissue resistance is low, inviting pyogenic infection and other complications. A gangrenous process may be set up, associated with sclerotic changes in the arteries supplying the field of operation, with partial or total obliteration of the lumen, or possibly thrombosis. If a surgeon is compelled to undertake an operation upon a diabetic individual, the patient should first be prepared by careful dieting. If, as commonly the case, acidosis is present, sodium bi-carbonate should be administered. By exact measurement of the amount necessary to produce proper alkalinity in the blood a very fair estimate can be made of the patient's powers of resistance. In some mild cases, as much as fifty or sixty grams can be administered daily.

Syphilis, even in its active and early stages, does not contraindicate surgical procedure, provided the patient is on specific treatment both before and after operation. The danger of infection to surgeon and attendants should, however, always be carefully considered. Where syphilitic cachexia exists because of lack of treatment, or where there is a severe degree of mercurial poisoning, all surgery should be avoided. If a surgeon is ignorant of the presence of syphilis in a subject presented for operation the consequences may be very serious, as a luetic condition delays or prevents healing of the operative wounds and retards the closing of drain passages.

Obesity should not be regarded as a bar to operation although it adds to the risks undertaken. The tissues are more liable to infection than those of the normally nourished individual, are more friable and easily traumatized, and do not hold sutures as well. In a fat subject a larger incision than in a slender individual is necessary to get the same results and the wound healing is not likely to be perfect, increasing the liability of hernia. Fat necrosis and fat embolism are not uncommon complications also.

Once operation is decided upon nothing is to be gained by waiting any length of time, unless the physical condition of the patient can be improved. The surgeon should not forget the anxiety which will beset even the most phlegmatic at such a time, and if the operation is set for nine o'clock and the operator does not reach the hospital until ten, the stress of waiting may cause a perturbed state of mind that will have a most deleterious after-effect. I prepare the field of operation in the usual way and the area is then coated with three-and-one-half per cent. tincture of iodine and covered with sterile towels. The patient can then be anesthetized according to the method selected for his especial case. When chloroform is to be administered the heart should be very carefully taken into consideration, but if ether is to be used, the same care should be given the lungs, as the heart will usually take care of itself.

ANESTHESIA.

The subject of anesthesia is one open to much discussion. Most surgeons have their pet anesthetics which they use as a routine, often seeking their own convenience rather than making a study of the needs of the patient. Too much emphasis cannot be laid on the necessity of realizing that "the patient is the first consideration, and not the prejudice of the surgeon for a certain method". Anesthetics should never be administered except by those who have been carefully trained in the use of the particular method which is to be employed, and the anesthetist should thoroughly familiarize himself with the needs of his patient. Such precautions are often neglected or deemed unnecessary, but experience has proved them to be of the utmost importance.

In order to overcome the patient's dread of the operation as far as possible, and to make the induction of anesthesia easier, it is my custom to administer a solacing dose of morphine and scopolamin about one hour before the patient is to be placed on the operating table. When dealing with the very aged, the very young, or any one whose enfeebled condition contraindicates the use of narcotics, it is, of course, omitted. In giving morphine in this way we have two objects: to lessen the effect of pre-operative psychic influence, and to actually hinder in some measure the damage to the organs of the kinetic

system resulting from the process of operation. Morphine is especially useful in cases where emergency operations must be performed. It inhibits nerve impulses, damaging in character, from reaching the brain, thus lessening the effect of the operative trauma. Under these conditions it should not be given in a single dose, but in repeated doses at intervals, until the desired effect is produced and the pulse rate is lowered enough to prevent too great a waste of the patient's already depleted energies.

In our work we employ four anesthetics; nitrous-oxid-oxygen; local anesthesia; spinal anesthesia; or a combination of nitrous-oxid-oxygen with local anesthesia.

Nitrous-oxid should be given only by one thoroughly familiar with all the details of its administration. Under these conditions it is perhaps the safest of all anesthetics. It is practically odorless; a few inhalations and quite enough to induce loss of consciousness; it is much less apt to cause vomiting than ether, and its effect upon the cells of the brain is very much less exhausting. A patient who has once taken this form of anesthesia does not dread it a second time, while anyone who has previously taken ether is almost certain to retain a lively consciousness of the unpleasant after-effects and to feel great reluctance about passing through them again. Ether is irritating to the bronchial passages, and has a drying effect upon the tissues. In such conditions as acute abdominal infections the use of ether should never be permitted, for its action upon the phagocytes—the cells upon which a patient with a severe pyrogenic infection must depend—greatly weakens the patient's powers of resistance, so that he is far more liable to succumb to the infection than when nitrous-oxid-oxygen is the anesthetic employed.

In the beginning of all our abdominal operations we infiltrate the skin at the line of incision with a solution of one-half of one per cent. *novocain,* while the patient is under the influence of nitrous-oxid, being careful to inject very thoroughly all the tissue to be divided, so that no nerve filament is omitted. This makes possible a clean, sharp dissection, and the abdominal walls are perfectly relaxed so as to offer no resistance to the manipulations of the operator. This is an admirable anesthetic to be used locally, or in conjunction with general anesthesia. When properly injected, the part is immediately rendered insensitive, the condition of anesthesia lasts for an hour or more, but does not in any way interfere with the prompt closing of the wound. We have repeatedly done operations of considerable importance with this anesthetic alone, such as the removal of hemorrhoids or superficial growths, rib resection in empyema, or the reduction of hernia, and we have even done Cesarean section without the addition of a general anesthetic.

Spinal anesthesia we have employed repeatedly, and always with the most highly gratifying results. We have found that it completely anesthetizes the part below the point of injection, blocking all nerve impulses, and yet producing none of the disagreeable sensations that invariably result from the use of any general anesthetic. We have employed it in extirpation of the prostate gland, in vaginal hysterectomy, for fistula in ano, during amputations, and in various other major operations where the life of the patient hung in the balance, and we feel certain no other anesthetic could have been so successfully employed. If a patient is pulseless—or practically so—because of a traumatic injury, he should not receive a spinal anesthetic until reaction sets in, and its use is not advisable in cases of collapse as a result of ileus, peritonitis, or an infected biliary system. Where pleuritic effusion or massive intra-thoracic growths have limited breathing area, spinal anesthesia, as well as all other forms, is likely to be attended with serious consequences. This form of anesthesia was used by Dr. Sanders at the Kansas City General Hospital in some three thousand cases, in which it was my good fortune to watch and assist. In but one case was there any bad result. This patient developed a dragging toe of one foot, but even in this case there was a possibility of the condition pre-existing the operation. When brought to the hospital he was in a state of coma, with a condition of urinary retention which necessitated immediate surgical interference, so that no careful examination was possible beforehand.

We have employed spinal anesthesia in a variety of conditions on patients ranging in age from the newly-born to ninety-three. It can frequently be used where any other form of anesthesia would be sure to produce dangerous complications. In our opinion there is no other anesthetic method that gives a greater degree of muscular relaxation with less danger. In adapting the dosage when the patient is a child, its size and strength should be considered rather than its age. Thus a child less than six months old can with safety be given 1.5 centigrams of stovaine, a child of five about 2.5 centigrams, and one ten years old 5 centigrams. We now use Babcock's solution entirely, compounded by the following formula:

Stovaine	0.08	gms.
Lactic acid	0.04	cc.
Absolute alcohol	0.2	cc.
Distilled water	1.8	cc.

As the operating surgeon is to administer the anesthetic it is of course absolutely necessary that he be familiar with every detail of the technique of spinal anesthesia. The patient is prepared the night previous to operation in the same manner as when a general anesthetic is employed. If he is psychically disturbed in any way we give morphine gr. 1-6 and scopolamin gr. 1-150 forty-five minutes before conveying him to the operating room. The back is scrubbed and prepared by painting the site of the puncture with three-and-one-half percent tincture of iodine, and covered with sterile pads. The patient is seated upon the operating-table, his feet hanging over the edge. He then is bent forward, supported by the nurse, and the back is covered with a sterile sheet with a small opening over the site prepared for the puncture.

In abdominal operations the point selected for the injection of the anesthetic is about on a level with the area where operation is to take place. Thus, in cases where the upper abdominal viscera, the stomach or the gall-bladder are to be operated upon, the twelfth dorsal space is the point selected; if the lower abdomen is the site of operation, the injection is made between the second and third lumbar vertebrae. As a rule, the lower injections are safer; if the point of puncture is made higher up, the lower dorsal nerves may be involved and respiration interfered with. We use a long needle, preferably of gold or platinum, with a tight-fitting stylet to prevent plugging. This is inserted in the midline of the spinal canal at right angles to the body, about the center of the selected interspace. As the needle enters the interspinous ligament considerable resistance is encountered, but when this is passed it glides easily until slight resistance is again experienced on entering the dura. The stylet is now withdrawn and the spinal fluid should flow freely.

A syringe is next attached to the needle, five to ten cc. of spinal fluid being withdrawn. This is mixed with the anesthetizing solution and the whole replaced in the syringe and injected. The needle is then withdrawn, and if the solution used is lighter than the spinal fluid, the patient's head is placed at least two inches lower than the hips, thus preventing an upward diffusion of the drug. It should have been previously explained to the patient that he will feel a slight prick and that immediately thereafter his lower limbs will become numb. If this precaution is omitted he may become very much frightened on discovering that he is unable to move them. In operating upon a conscious subject the surgeon must take account of the psychic element, in addition to the technical details of the operation, which increase his responsibility not a little, and to the minds of many, constitute a very serious objection to the use of spinal anesthesia.

In operations where the vitality of the patient is at a low ebb, or where profuse hemorrhage has taken place the margin of safety may be widened by *blood transfusion*. In skilful hands this is a most valuable procedure in conditions of profound exhaustion, anemia or sepsis. We have made use of it with great success on many occasions.

There are many conditions, as where cancer of the gastrointestinal tract or large ulcer masses are present, in which it may be desirable to perform the *operation in two stages*. Under such circumstances the plan above outlined should be carefully adhered to, and should commend itself to every thoughtful surgeon. By making use of this method of anoci-association the fears of the patient are not increased by the experiences of the first step in the operation, so that he is able to approach the second stage without undue disturbance, either physical or mental. When this method is employed throughout, the two-step operation is much more easily accomplished. Not infrequently when it is planned to perform an operation in two stages—as for instance a gastro-enterostomy to be followed by a resection—the second step has been found unnecessary, the mass entirely disappearing, so that the stomach resumed its normal functions and resection was not required. Thus an additional and dangerous operation was obviated. Drainage of an appendiceal abscess or of an infected gall-bladder can be quickly accomplished in the first stage, and an already exhausted patient does not undergo the hazard of a long and sometimes quickly as is consistent with good surgery.

The essential points in the management of *acute peritonitis*: The Crile method is paramount,—

Nitrous-oxid-oxygen anesthesia.

Local anesthesia at point of incision.

Clean-cut wound, lessening shock and liability of infection.

Adequate drainage.

Large hot flannel packs placed over the entire abdomen, well up on the chest and around the sides to the bed line.

Fowler's position throughout.

Five per cent sodium bicarbonate with five per cent glucose by Murphy drip, continued as long as it is tolerated.

Primary lavage of the stomach, repeated if necessary, although it is rarely required if anoci-association is complete.

From 2,500 to 3,000 cc. of physiological sodium chloride solution administered subcutaneously every 24 hours until the period of danger is past.

Morphine given hypodermatically until the rate of respiration is reduced to 10 to 14 per minute, and held there until danger is past.

In streptococcus peritonitis morphine is not useful.

POST-OPERATIVE CARE.

Immediately upon the completion of the operation the patient should be carried to bed, and sufficiently covered to be kept thoroughly warm without sweating. Water should be given freely, also alkaline saline proctoclysis by the Murphy method as long as it will be tolerated. If the fluid drip is not retained the solution may be given in bulk. Hypodermatoclysis of physiological salt solution may be administered if necessary. To allay gas pains, a hard rubber tube, long enough to pass the internal sphincter and about the size of the forefinger, is inserted in the rectum. Should oozing hemorrhage take place such preparations as horse serum, thromboplastine, or coagulose may be given, but the best method of checking hemorrhage has been found to be placing the patient in a nearly upright position immediately after operation. This cannot be done in the case of very elderly patients. As soon as the hemorrhage stops the patient may again be allowed to recline, so that the circulation to the brain will be restored. By lowering the blood pressure in this way the patient is brought to the verge of fainting, and coagulation is facilitated.

Finally, *sleep* is the greatest necessity for restoring the patient to health and vigor. Morphine should be administered freely enough to keep the patient comfortable, and the surgeon should concern himself in regard to this, not leaving the amount or the frequency of the administrations to the judgment of a nurse. It is useless to take elaborate precautions to avoid all shock in the operative procedure, only to let the patient exhaust his vitality by the action upon the kinetic system of the effects of trauma, fear and toxins, all of which may be avoided by the intelligent administration of morphia, in small, frequently repeated dosage. We use morphine, 1-32 to 1-16 of a grain, with scopolamin, gr. 1-200, every three or four hours for the first twenty-four hours after operation. It is seldom necessary after that.

A summary of the care which should be given to a patient, before, during and after operation is:

Plenty of water and carbohydrates before and after operation; neutralizing the acids.

Proper selection and administration of the anesthetic.

Avoidance of over-taxing the patient by too long an operation; use of the two-step operation if necessary.

Clean-cut surgery that does not traumatize the tissues and invite infection.

Abundance of sleep.

206 McMillen Building.

GASTRECTOMY
A NEW OPERATIVE TECHNIQUE

T. de Martel,
Paris, France.

Gastrectomy is the only treatment that can be used in carcinoma of the stomach, and it is also, in a good many cases, the best treatment for ulcer of the stomach. For this reason it appears to become more and more indicated as a procedure.

It is necessary that the technique of this operation be regulated in its utmost details, so that the mortality be reduced as much as possible.

For the last two years I have had occasion to perform a good many gastrectomies and thanks to this, I have been able to perfect my method of operating. I believe that the clamps that I have devised, which have been so favorably received by nearly all my French colleagues, constitute a real progress. The presentation of my developed technique is the purpose of this paper.

Preparation of the Patient Before Operation. Whenever possible I make my patients follow a treatment, the prime object of which is to avoid infection of the sutures of the stomach.

Important are the care of the mouth and teeth, so as to decrease possible contamination of fluids taken, then daily stomach lavage, except in patients subject to gastric hemorrhages. This has for its objects to cleanse the stomach and to accustom the patient to this procedure after operation, when it is absolutely necessary.

I have never attempted to alkalinize the patient's secretions and I have never noticed any of those cases of acidosis so often referred to both in France and abroad.

Anesthesia. This can be general, spinal, regional or local.

Ether anesthesia usually suffices, the patients sleep well with a moderate dose, but they often breathe rather stertorously, salivate much and sometimes present difficulty in closing up the belly. This can be decreased by injecting, prior to operating, 1 cgm. of morphine and ½ milligr. of scopolamine. Scopolamine has a peculiar action on the salivary glands and dries them up nearly entirely. I prefer to use nitrous oxid to ether. Under the influence of my friend Ambard, I was one of the first to employ it in 1912, at a time when it was not in common use in France.

Spinal anesthesia, by injection of 3-4 of a cgm. of stovain Billon, associated with very slight ether anesthesia has given me very good results and this is the method which I use most frequently. (Bavaut,

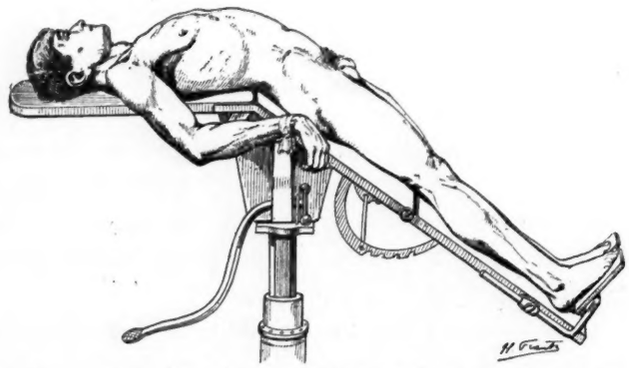

Fig. 1. The patient is placed with the head and upper part of the trunk horizontal. The lower limbs and the lower part of the trunk are inclined downwards.

with whom I have discussed this, prefers novocain to stovain, which causes a precipitate in the spinal fluid.)

In spinal anesthesia the shock is just as severe as in general anesthesia, but it causes remarkable immobilization of the abdomen and complete relaxation of the walls. This condition helps considerably during operation. The slight general anesthetic, which I use simultaneously, prevents the patient from witnessing his own operation and is chiefly used for its psychic effect.

Paravertebral regional anesthesia is theoretically the best method to use. Unfortunately it is rather difficult to accomplish. It necessitates a large number of injections. It can be used only when there is an assistant, especially trained for this method. Occasionally, even in expert hands, it produces only relative anesthesia, which is not sufficient.

Next to paravertebral anesthesia, we have the combination of local anesthesia, for opening the abdominal cavity and anesthesia of the celiac plexus, for the intra-abdominal work. I have seen Pauchet use this method twice with very good results.

Local anesthesia alone, sometimes sufficient for gastro-enterostomy, is absolutely insufficient for gastrectomy.

Position of the Patient. I always place my patients in a position similar to that used in operating upon the gall-bladder. The head and the upper part of the body are horizontal, while the rest of the body is inclined downwards (figure 1).

This exposes the gastric region. The small intestines do not tend to invade the operative field and are easily kept in position in the lower port of the abdomen. The only inconvenience is that, particularly in older people, there is great fatigue after operation.

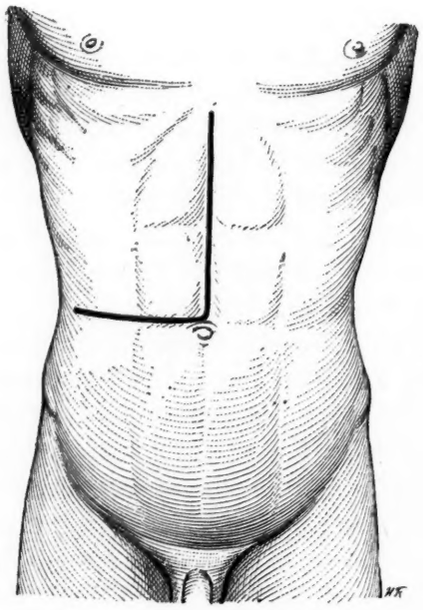

Fig. 2 L-incision. At first only the vertical incision of the L is made. If gastrectomy is decided upon, the transverse incision is made.

It is necessary, in order to sew up the abdominal walls, to bring the patient back to the horizontal.

Incision. I make an incision from the xyphoid cartilage to the umbilicus, and nearly always this easily exposes the lesion.

If I decide to perform a gastrectomy, a small retractor is introduced between the stomach and the abdominal wall, to protect the abdominal cavity and its contents during the execution of the transverse branch of the L-incision, which I use for a gastrectomy, as soon as I find that by having only a median incision I have the slightest difficulty in discovering the duodenum.

I make this transverse incision from the lower extremity of the median incision, that is to say from

the umbilicus, to the external border of the right rectus and even further (figure 2),

I incise first the skin, then I ligate the small blood-vessels with fine catgut. This done, I incise the sheath of the rectus muscle, then the muscle itself, meantime clamping and tying any spurting blood-vessels.

All that is left then, is to incise the posterior sheath and the parietal peritoneum, so that the angular flap can be brought upwards and to the patient's right. The angular flap is limited by the L-shaped incision and fixed to the abdominal drapery with small tissue forceps (figure 3). The amount of space, that this

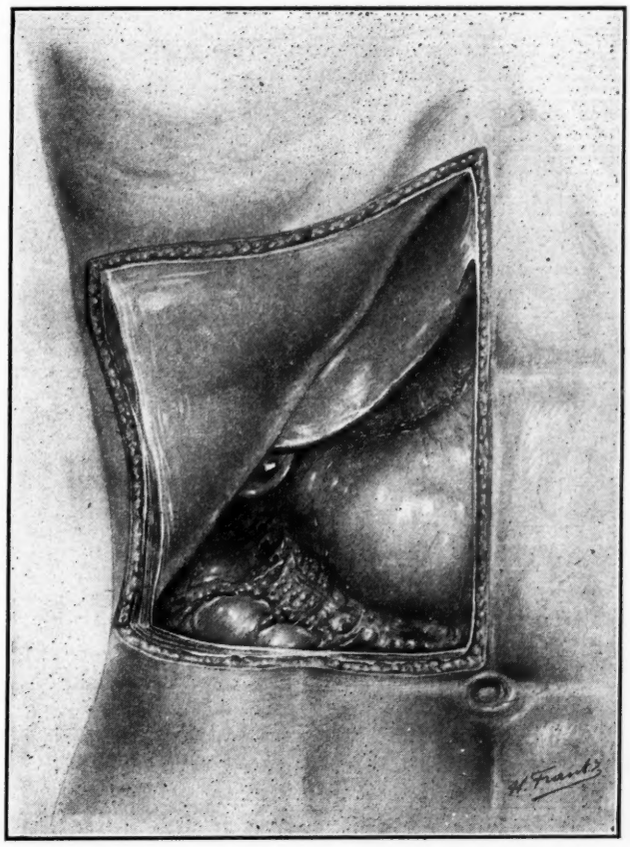

Fig. 3. This picture shows the view which the L-incision gives of the pyloric region of the stomach, the gall-bladder, the angle of the colon and the duodenum.

incision gives, is remarkable and as far as the strength of the wall is concerned it does not decrease it, providing the muscle sheaths are reconstructed. The muscle is not deprived of any of its nerve supply and as a result of the transverse incision, has one extra fibrinous intersection. This incision also works very well in gall-bladder surgery. The only drawback is that it will take five or six minutes to perform it, and to close it well it takes about twice the time, it therefore prolongs the operation about a quarter of an hour. A long time ago, however, I gave up the belief in rapid operations and my faith in easy and careful operations increases every day, therefore this objection as to slowness does not bother me very much.

Looking Out For the Fixed End of the Small Intestines. Before attempting anything else, I look for the first portion of the small intestine. About 30 cm. away I block the rest of the small intestine by means of small clamps and place it on a large dressing.

Separation of the Colon and the Omentum. The assistant takes the colon in his left hand and the great omentum with his right hand and brings forward the omentum so as to present the posterior surface to the scalpel of the surgeon. Very often, the posterior surface of the omentum is united to the anterior surface of the transverse colon by a thin peri-

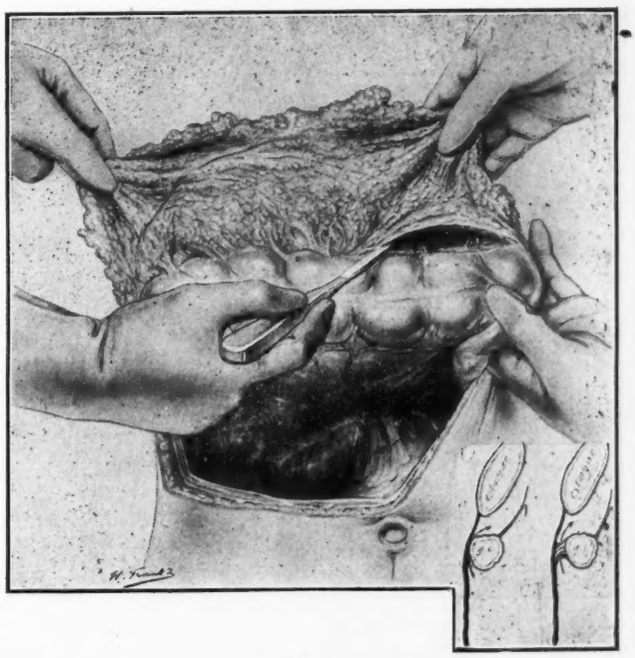

Fig. 4. This picture shows how the detachment of the omentum from the colon is accomplished, by the method of Lardennois and Okinczyc. The insert shows the two conditions that may occur: In one case, one dissects off the omentum from the transverse colon; in the other case one enters the lesser sac by dividing an avascular peritoneal veil.

toneal veil which is sometimes fairly long. It is easy to incise this and thus enter into the lesser peritoneal cavity; there is not required in these cases any detachment of the omentum from the colon (figure 4). Occasionally, however, the great omentum lies directly on the transverse colon. In such cases the separation is started by drawing a line over the serous covering of the transverse colon. Once this is started, it is easily carried on towards the posterior wall, although several strands may unite the anterior surface of the mesocolon to the posterior surface of the omentum. The separation must be started on the

left side of the transverse colon and carried on from left to right.

When this separation is accomplished, the second portion of the duodenum and the head of the pancreas, (anterior surface), the first portion of the duodenum, the pylorus and the stomach (posterior surface), are clearly seen and the surgeon performing the operation cannot help but feel thankful to Lardennois and Okinszyc who devised this method of approach.

The Bloodvessels of the Greater and Lesser Curvature at the Level of the Proposed Incision of the

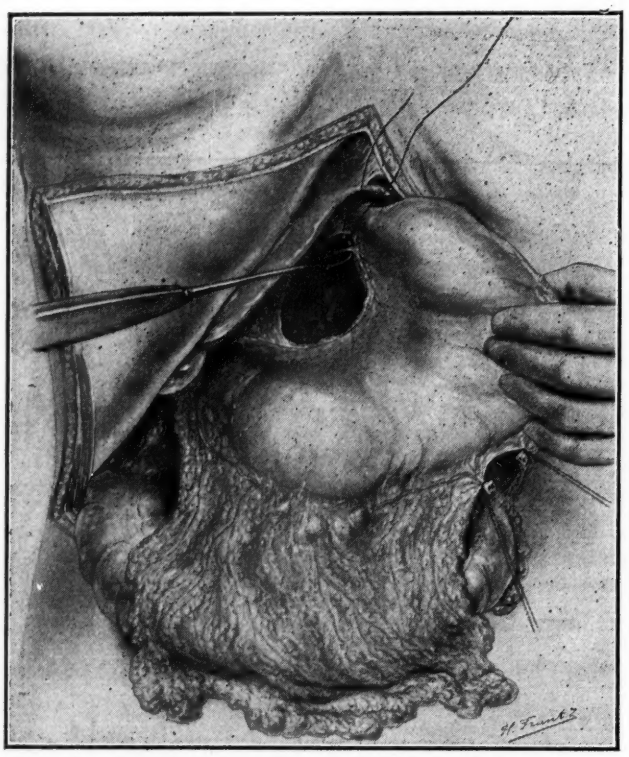

Fig. 5. The vessels of the greater curvature have been cut between two ligatures at the point where the stomach is to be sectioned. The great omentum has been divided at the same level. A ligature has been passed under the coronary artery and is about to be tied. This ligation is sometimes very difficult in fat individuals, and this drawing is poor because it does not give an idea of this difficulty.

Stomach. Once the omentum is detached it can be lifted with the stomach so that one looks at the posterior surface of the latter. It is then easy to pass, from behind forwards a dull needle or a clamp between the bloodvessels of the greater curvature of the stomach. Two threads of linen, one white, the other black, so that they are not confused, are then passed through and the bloodvessels are tied at two different points about 3 or 4 cm. apart. It is also necessary to tie with very fine catgut, at the level of the stomach, all the branches that come from the bloodvessels, between these two ligatures (figure 5). These bloodvessels can then be cut and separated entirely from the stomach without any loss of blood. The stomach is then freed for a sufficient length to easily apply the crusher.

I have used the method of Temoin, but I find it rather brutal and it often causes severe bleeding from the stomach.

Up to now only a slight opening has been made in the omentum. It is best to complete the incision to the free border. This can be done, either by mass ligatures (if it is not too long or too thick) corresponding to the vessels of the greater curvature of

Fig. 6. One of the three pieces of the crusher, made with two jaws articulated at one end.

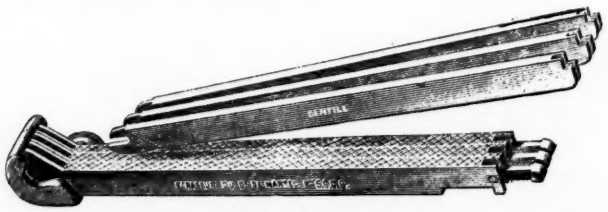

Fig. 7. The crusher demounted. The lower jaw formed by the juxtaposition of the three lower segments, is held together by a shoe. The upper jaw also consists of three segments.

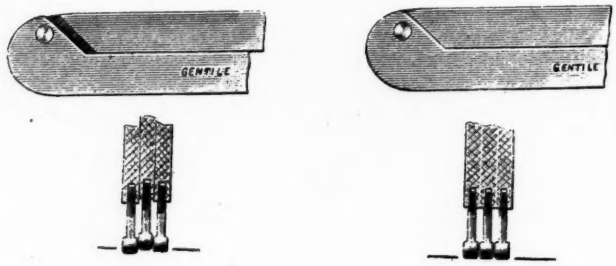

Fig. 8. Showing the three pieces assembled correctly and incorrectly. Improperly assembled, the instrument will not close and will break.

the stomach or in using only a few ligatures to tie part and accomplishing the rest of the hemastasis by a series of chain ligatures, below these. If the omentum is thin, hemastasis, by this method is easy. It suffices to cut the avascular areas with scissors, ligating all large bloodvessels that traverse the path of incision. The pieces of omentum thus obtained will be very useful to cover up and surround the stumps of the stomach and duodenum, which never can have too much peritoneal covering.

Ligation of the Coronaries. A large retractor, introduced under the liver, lifts up this and the left side of the incision, so as to expose well the anterior surface of the fundus of the stomach, the lesser curvature in its superior portion and the cardia.

With the finger, the avascular portion of the lesser

omentum is ruptured and torn down to the falx formed by the parietal peritoneum raised by the great vessels of the stomach.

The index finger in certain cases can catch hold easily of these vessels and they are clamped and ligated under the eye, if the patient is thin and the peritoneal fold is not full of fat. In the other cases the ligation of these bloodvessels is not very easy and a

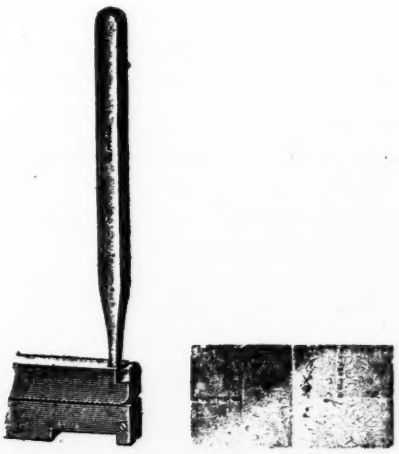

Fig. 9. Showing how, with a lever movement, the crusher is opened by disengaging the lock bolt with a small special instrument or with a grooved director.

Fig. 10. The vice in place on the crushing clamp. The heel of the attached lever presses the segments into their mortises.

bloodvessel may escape and bleed freely when cut. In this case it is best to proceed in the same way for the lesser curvature as for the greater, but the passing of two ligatures on the bloodvessel is a little more difficult. The bloodvessels are in direct contact with the stomach and often spread on both surfaces of the viscus.

I usually gather together veins and arteries in a bunch which I press between the thumb and index and introduce underneath the two ligatures on the blunt needle. Then I cut the bloodvessels after having tied them.

On pulling upon the pylorus I detach the bloodvessels of the edge of the stomach and enlarge the opening created in the vascular arch of the lesser curvature so as to have plenty of room to place the crusher without squeezing within it the stumps of the ligated bloodvessels. This detachment sometimes ruptures

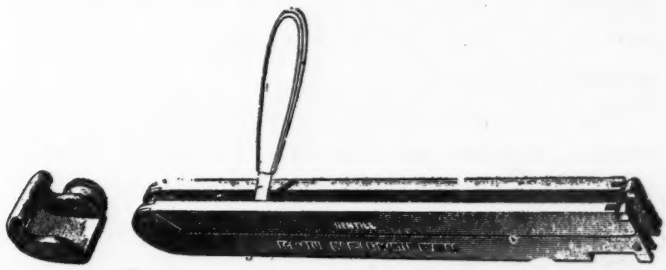

Fig. 11. The shoe that holds the three segments together is removed. The central segment has been removed. The scalpel is passed along the inner face of the distal segment.

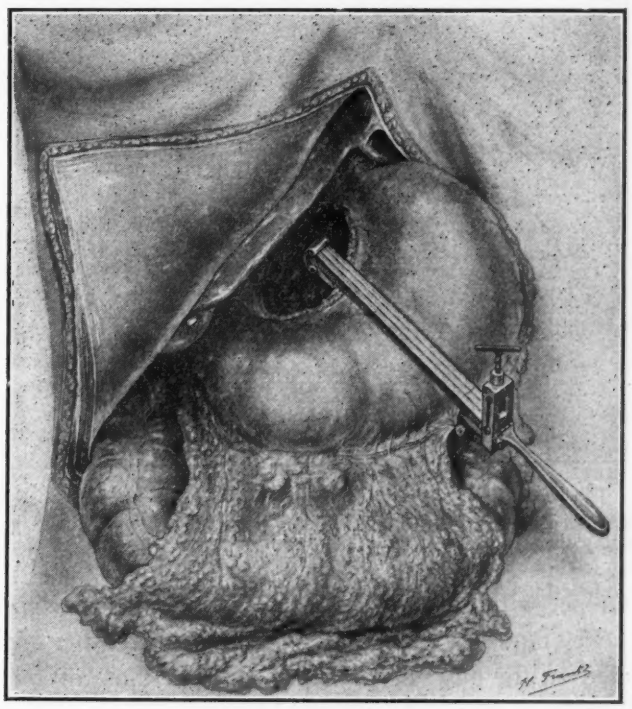

Fig. 12. The crusher, in place, is locked and then tightly closed with the help of a vice which is then removed.

a few vascular branches at the edge of the stomach, which can be clamped and tied.

In cancer cases there is a real advantage to cut the coronary artery near its origin. The distal portion of the vessel can then be detached by scratching with a scalpel. In this way all the lymphatic glands of the lesser curvature can be removed.

All these maneuvers made necessary by the ligation of the coronary artery become very difficult in tumors of the lesser curvature next to the cardia. The bloodvessels are in the involved area and their isolation is

sometimes impossible. In these cases, all that can be done, is to cut and ligate whatever bleeds.

Section of the Stomach. The lower segment of the crusher is placed under the stomach (figure 7). The three upper branches are put in place. When these are brought together they form the upper segment of the apparatus which crushes the stomach (figures 10 and 12). When the two pieces are brought together, the assistant manipulates the lever and this puts in the places the three locking cleats. The instrument is closed.

The screw and the shoe, which keep the three crushers together, are removed. The middle crusher is removed. In the space where it was, and close to the distal crusher, the stomach is cut through with a

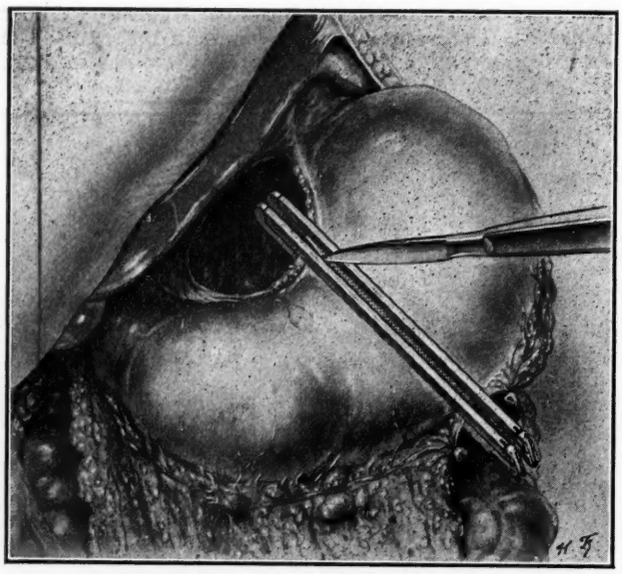

Fig. 13. The middle segment has been removed. The scalpel divides the stomach along the face of the distal segment.

scalpel without any danger of soiling the operating field (figures 11 and 13). Beyond the crusher situated on the gastric (proximal) side is thus left projecting a flap of crushed gastric tissue, strong enough to hold an overcasting suture passed close to the surface of the crusher (figure 14).

This gives an edge, easy to invaginate, and holding the stomach well closed, as can be seen as soon as the crusher is removed (figure 15). To invaginate the line of suture, begin the invaginating sero-serous stitch in the middle. In this way two pleats are formed in which it is easy for the assistant to push in the two ends of the stomach, by using a pair of non-serrated forceps. The angles of the stomach are rather difficult to invaginate if one starts the invagination suture at either of these ends of the line of section.

Liberation of the Stomach. Section of the duodenum. By using the distal crusher as a tractor, the portion of the organ to be removed is elevated (figure 16).

Occasionally on its posterior surface it adheres to the pancreas. In that event, depending on the case, it must be liberated by separating with a gauze compress or a scalpel. It is very necessary that the anatomy of this region be kept well in mind, remembering that under the inferior border of the pancreas, at the duodeno-jujenal angle are found the superior mesenteric vein and artery and also the root of the meso-colon. When adhesions exist with the trans-

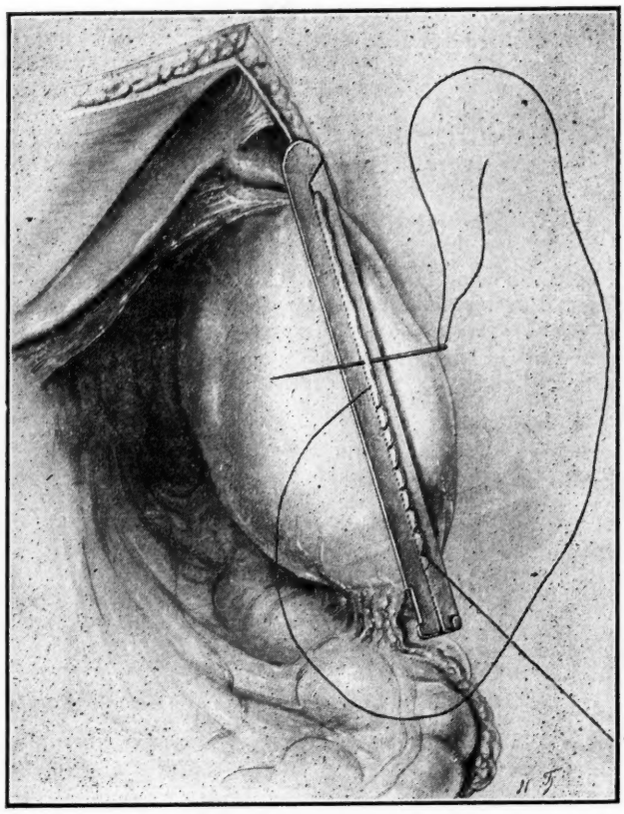

Fig. 14. Beyond the proximal segment of the crusher projects a flap of crushed stomach, through which is passed an overcasting stitch, on the free surface of the clamp.

verse meso-colon, it is easy to injure the arteries of the colon, and it is sometimes best, as I have to do several times, to resect the transverse colon. I once had to resect with the stomach the middle portion of the pancreas; the superior mesenteric vein and the beginning of the portal vein were exposed at the bottom of the wound. The patient died of a thrombosis of the superior mesenteric artery.

The stomach is brought over to the right, the pylorus and the first portion of the duodenum becoming stretched and prominent.

The pancreatico-duodenal artery is tied at its

origin. Nevertheless one must also tie the vessels on the superior and inferior borders of the first portion of the duodenum and the pylorus. Only direct hemastasis here will afford absolutely dry incisions.

Depending upon whether we are dealing with a carcinoma or an ulcer, the omentum is removed or not. To remove it, all that is necessary is to freely strip it from the inferior border of the pyloric end of the stomach and from the anterior surface of the second portion of the duodenum.

At the same time the right gastro-epiploic artery

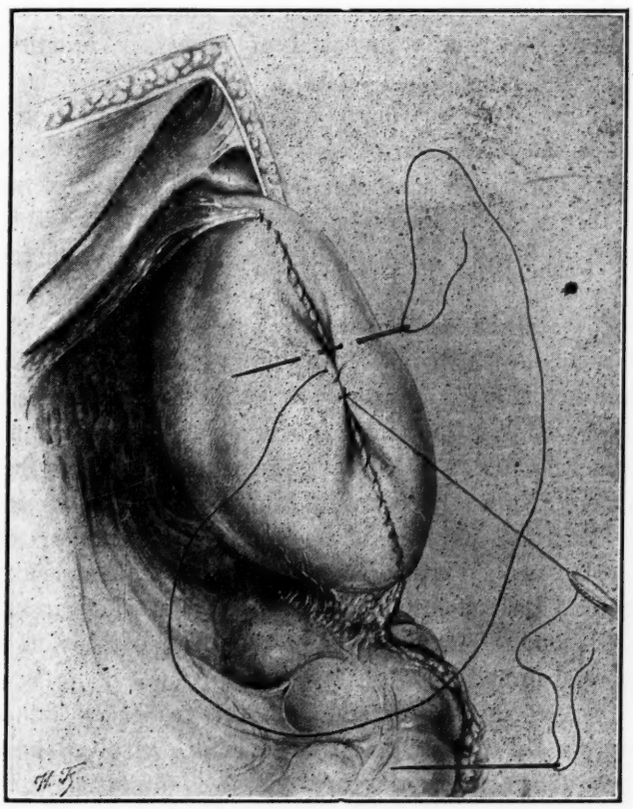

Fig. 15. Invagination of the crushed and sutured margin. The invaginating suture is begun at the center to facilitate the infolding of the angles.

is freed and it is tied as its origin from the pancreatico-duodenal artery.

To keep the omentum, it is left adherent by its right end to the anterior surface of the pancreas and the second portion of the duodenum.

Section of the duodenum. By ligation of the pancreatico-duodenal artery and by direct ligation of the arteries of the superior and inferior borders of the duodenum, hemostasis of the proposed incision of the duodenum is accomplished, and the section may now be made:—

First method. The small Mayo crusher being put in position, the intestine is cut on the surface of this clamp, between it and a Kocher forceps which closes the pylorus. An overcasting sero-serus suture is then passed, over the crusher from one surface of the duodenum to the other. The crusher is then opened and, before the two crushed surfaces have had time to separate they are invaginated imperfectly by traction on both ends of the suture. This is the method followed by the Mayos and Pauchet.

The invagination thus obtained is not perfect, particularly at the angles and it must be supported. This can be done by tying the two ends of the purse string. All that is necessary after this is a few stitches. This method has the advantage of not producing any cavity between the through-and-through and the invaginating sutures.

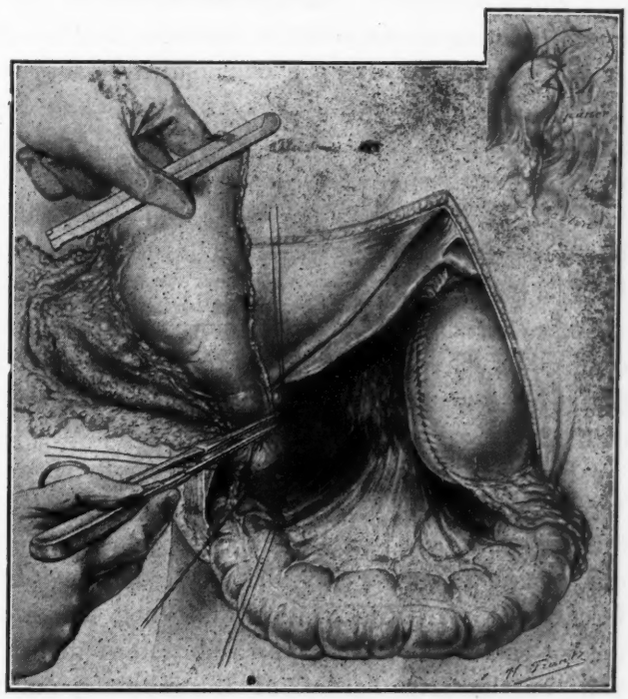

Fig. 16. The duodenum is tied with horsehair, knotted firmly about it. The inverting purse-string suture is in place. By using the distal segment of the crusher as a handle, the divided stomach can be lifted up without any fear of soiling.

Second method. The duodenum is crushed and tied in the crushed groove with horse hair. A purse-string suture is stitched around the intestine, below the crushed groove. The intestine, closed by a clamp, is cut above the horse hair. The stump which is left is pushed in and the purse-string pulled tight.

The stump is well buried, but it sometimes happens that the duodenum, devoid of peritoneum on its posterior surface, gives way at this point and that tying the horse hair in the crushed groove becomes impossible.

Third method. This is identical with the preceding, but without using a crushing clamp. The duodenum is ligated with a heavy horse hair which is drawn very tight. A purse-string suture is passed

below the ligation, the stump is invaginated in the center and the purse-string is tightened (figure 16).

I prefer this last method, but it necessitates, as do the other two, that at least 1 cm. of the posterior wall of the duodenum be conserved. When this is not done, the invagination is defective, and certainly here is the one real difficulty in the operation.

The majority of cases of gastrectomy that terminate fatally die from infection starting from a duodenal stump that has not been well closed. One is apt to forget that intestinal and gastric sutures only hold because of the wonderful soldering quality of the peritoneum. Without this quality intestinal surgery would not exist. The duodenum has no peritoneal covering on its posterior surface, therefore it is always necessary, after the invagination, to support it with a supplementary invagination by stitching the peritoneum of the anterior portion of the duodenum with the peritoneum, unfortunately very friable, of the anterior surface of the pancreas and, especially, by covering the whole with a piece of omentum, kept for this purpose.

Gastro-enterostomy. Gastrostomy having been accomplished, bleeding points are looked for and all that is necessary to do now is to reestablish continuity of the intestinal tract by a gastro-enterostomy.

I have tried all types of gastro-enterostomy and found them all, after gastrectomy, satisfactory. I therefore now use the one which is easiest. In reality it is because they are easiest that I use only two different methods. I either attach the whole length of the cut end of the stomach, or a portion of this section, in the free border of the jejunum, pulled through an opening in the meso-colon and for this case I keep the stomach closed with the crusher during the whole operation or, having invaginated the cut end of the stomach, as described above, I perform an anterior gastro-enterostomy parallel to the section of the stomach and to its left. This is the method which I most often find indicated.

Gastrectomy, performed as here described, has given me very good results.

PERFORATING ULCER.

A perforating duodenal ulcer, resulting in septic peritonitis, demands immediate interference; otherwise, a very high mortality is the result. Because of the sudden, acute, agonizing epigastric pain accompanied by great shock that characterizes the perforation of a duodenal ulcer there should be no hesitancy in operating on these cases at once.—J. P. RUNYAN in the *Southern Medical Journal.*

PLASTIC AND COSMETIC SURGERY OF THE HEAD, FACE AND NECK.

GUSTAV J. E. TIECK, M.D., F.A.C.S., AND H. LYONS HUNT, M.D., L.R.C.S. (EDIN.)
NEW YORK, N. Y.

III. CORRECTION OF NASAL DEFORMITIES. (RHINOMETAPLASTIE).

By GUSTAV J. E. TIECK.

Only a few centuries ago surgery was considered beneath the dignity of the physician and was the lighter occupation of the barber. As years brought knowledge and decades studious thinkers, that great subject was lifted from its lowly position of levity to be placed on a pedestal of necessary practice. Surgeons were given birth.

Just as surgery fought its forward way to recognition, so have each of its branches experienced the same opposition in the endeavor of their exponents to lift to a higher and individual plane those subjects of their interest, worth and labor. While the operation of staphylorrhaphy for a congenital cosmetic defect was tolerated by the profession which, like society in general, was so omnipotent, judicial and fickle, other measures for cosmetic improvement were left to incompetent adventurers, advertisers and quacks. Even in the present swiftly-changing, kaleidoscopic period, an author of a work on the intricacies of plastic surgery humbly presents to the profession a jewelful book and urges this specialty behind the noble subterfuge that the world war has demonstrated beyond doubt the need of this as a special branch!

No apology is extended to the reader by either author of these articles. The labors involved have been long and often wearisome, as is always the case with those who work on unexplored and unhewed roads. The world war was only one demonstrative factor that called on the profession to give trained specialists to succor its facially maimed and deformed. In that unjustified conflagration men who had been happy in their birthright of regular features refused to tolerate facial disfigurement that could be corrected. How much greater, therefore, is the justice of the cry of those who from the cradle have been the victims of featural deformity!

Those who have always felt that their ascendent duty was to heal rather than beautify may learn that the two practices are not dissimilar. A solitude sought through undesired, fanciful imaginings, psychic depression and even deep dejection, to end in suicide, are not infrequent resultant symptoms and endings of those individuals profoundly unhappy in their own appearance. When facial disfigurement is such as to cause serious social or business embarrass-

ment, it becomes a real and potent cause of unhappiness. Young women of marriageable age feel keenly the disadvantage of distorted features. Not vanity, but only deep concern and worry are at bottom the cause of most cases that come to the plastic surgeon. Their own irregularities are mirrored to them through a deceived eye. This can be appreciated by the anxious, expectant expression of the patient as he awaits an opinion as to the possibility of a corrective operation. His suspense is as serious and pitiful as his happiness is rapturous and unconfined on receiving an affirmative answer.

Among the abnormal featural derangements, none causes more perturbation than the misshapen nose, be it the result of injury, heredity or disease. It has been stated already in the article on history of plastic surgery that this difficult and technical field originated with rhinoplasty. This subject properly deals

Fig. 1. Front and profile views of two patients before operation.

with replacement of missing parts of the nose. Rhinometaplastie (Joseph)*, or the correction of nasal deformities, is the subject I shall first describe. Before considering any surgical therapeusis involving this important organ, it is advisable that the following brief review of the anatomy of the nose and of certain general fundamentals of grafting be perused.

The nose consists of an anterior prominent part composed of bones, cartilages, muscles and skin, and two nasal fossae. There are five cartilages, two upper and two lower lateral, and the cartilage of the septum. The upper cartilage anteriorly joins its fellow and the cartilage of the septum and posteriorly is in connection with the nasal process of the superior maxilla. Inferiorly it joins the lower lateral cartilage. The lower lateral cartilages are peculiarly curved to form the nostrils in the middle and sides, and are open behind. Each is connected to the nasal process of the superior maxillary by fibrous membrane. Above, they join the upper cartilage and the cartilage of the septum. The latter is attached anteriorly with the nasal bones, the two upper lateral cartilages and the two lower lateral cartilages, while posteriorly, it joins the perpendicular plate of the ethmoid and is attached to the palatal processes of the superior maxilla and the vomer below.

The nasal fossae are separated by the septum nasi. They are joined in front by the anterior nares and behind by the posterior nares. Each has a roof, floor, inner and outer wall. The roof is formed by the nasal bones, the cribriform plate of the ethmoid, the nasal spine of the frontal bone, the inferior surface of the body of the sphenoid, the alae of the

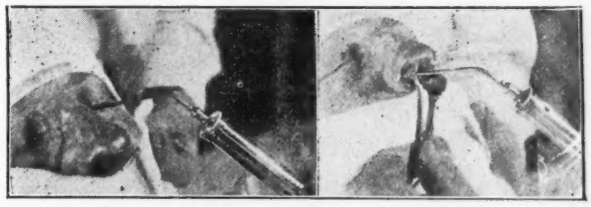

Fig. 2. Intra- and extra-nasal anesthetization.

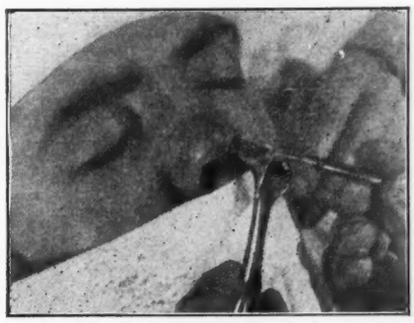

Fig. 3. Forming a pocket for the transplant.

vomer and the sphenoidal ciliated processes of the palate bones. The floor is composed of the upper bones and the palatal processes of the superior maxilla. The inner wall is made up of the cartilage of the septum, the crest of the nasal bones, the nasal spine of the frontal, the perpendicular plate of the ethmoid, the vomer, the rostrum of the sphenoid and the crest of the superior maxillary and palate bones. The outer wall is formed by the nasal processes of the superior maxilla, the lachrymal bone, the ethmoid, the inner surface of the superior maxilla, the inferior turbinate, the vertical plate of the palate bone, and the pterygoid plate of the sphenoid.

The superior and middle turbinate processes of the ethmoid, and the inferior turbinate project inwards from the outer wall, and in so doing, divide each fossa into a superior, middle, and inferior meatus. Into the superior meatus open the sphenoidal and posterior ethmoidal cells. Into the middle meatus

*In this and future articles on this topic, I shall use the terminology and classification originated by Jacques Joseph of Berlin.

open the anterior ethmoidal cells, the frontal sinuses and the antrum of Highmore. The inferior meatus accommodates the opening of the nasal duct.

The septum is formed by the perpendicular plate of the ethmoid, the vomer, the crest of the nasal bones, the nasal spine of the frontal, the rostrum of the sphenoid, the crest of the superior maxillary and palate bones and the cartilage of the septum. The space between the anterior nares and the anterior edge of the cartilage of the septum, is filled by membrane, the columna nasi. The mucous membrane lining the cavity of the nose is called the Schneiderian

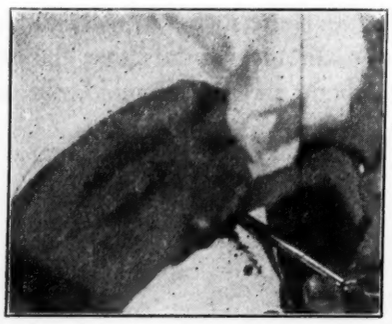

Fig. 4. Insertion of the transplant.

Fig. 5. Cases shown in figure 1 at end of operation.

membrane. It is continuous with that of the various sinuses, communicating with the nasal fossae, with the conjunctiva from the nasal duct and lachrymal canals, and with the pharyngeal mucous membrane through the posterior nares, and the skin of the face through the anterior nares. On the outer wall of the septum the mucous membrane is unappreciably divided into upper, olfactory, and lower, respiratory part; the olfactory part consists of the mucosa over the superior and outer part of the middle turbinate, the corresponding part of the septum and the roof of the nose; the balance is respiratory. The epithelium covering the surface consists of three varieties, stratified squamous near the nostrils, columnar in the olfactory region, and ciliated columnar in the respiratory region and sinuses.

The nose is supplied with blood by the sphenopalatine, branches of the descending palatine, and the arteria septi nasi, from the facial. The organ receives its nerve supply from the olfactory, the nasal (first division of the fifth), nasal-palatine, nasal branch of the Vidian, nasal branch from the superior palatine, and from Meckel's ganglion.

Those points of moment to be considered in all nasal operations requiring grafting may be briefly enumerated as follows:

(1) The source of the graft.

(2) The nature of the graft—autograft, isograft or zoograft.

(3) The bed for the graft.

(4) The type of graft—bone or cartilage.

Source of the Graft. Autografts or grafts from other parts of the same individual are generally recognized as preferable whenever possible. In isografting, or grafting tissue from other individuals,

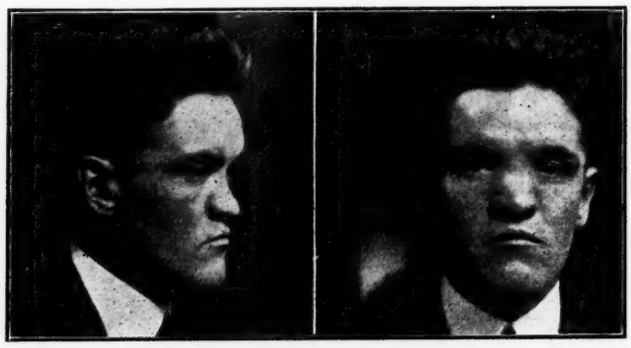

Fig. 6. Typical case of pachyrinie or broad, flat nose requiring the operation of rhinosyspasis.

the health of the donor—absence of syphilis, tuberculosis, small-pox—must be assured, and success or failure will depend upon the similarity or dissimilarity of blood groups of host and donor. In zoografting, grafts have been taken from many species—the inner surface of the wing of the pullet, from pigeons, young puppies, guinea-pigs, rats, rabbits, frogs, the common lizard, cats, and even the lining membrane of the hen's egg and fetal membranes and parts.

Nature of the Graft. In this article special consideration is given only to the transplantation of bone and cartilage and the preparation of the surface to receive such grafts. In the operation I am about to describe, it is preferable to use autografts whenever available; when these are not available, use isografts, the preparation of which are later considered.

The Bed for the Graft. In autorhinometaplastie, the receiving surface must be of equal consideration to the autograft. This surface must be free from blood as nearly as possible and in an aseptic condition. Under favorable conditions all types of autografts may be placed on fresh wounds and be expected to "take". A non-take of a normal living

healthy autograft on a fresh wound, would in all probability be due to blood between the wound's surface and the inferior part of the autograft. Davis claims that "cartilage is an ideal supporting substance for transplantation when too much strain will not be placed upon it, and will live and not shrink when transplanted free (either with or without its perichondrium) into soft parts. It will also live when in contact with bone at one or both ends, although the union between bone and cartilage will not be rigid". This statement is at variance with the author's experience relative at least to nasal procedures.

The Type of Graft. In my work of constructive surgery of the nose I have used sections from ribs, costal cartilages, the sternum and tibia with but mediocre success. In those cases of cartilage transplantation, the transplant is usually absorbed—the

Fig. 7. Front and profile views of a case of pachrhyinie before operation.

cartilage being non-vascular (dependent entirely for its nourishment on the perichondrium) is apparently without sufficient vital resistance. Another great disadvantage in the use of cartilage is the difficulty of thermal sterilization. Cartilage is composed of two individual entities—a mucoid material which comes from the exterior sheath of the cartilage cell, and gelatin derived from the cell substance, and is collagenous. When cartilage is subjected to thermal sterilization, there is a divorce of these essential constituents. Seven or eight years ago, before I found that it was an absolute necessity for successful transplantation, and, to prevent severe reactions, to sterilize my transplants in this way, I had a few cases where I transplanted cartilages which did not suppurate, and where the nose still retains its shape; but such cases are so insufficient numerically in comparison to the unhappy absorptions, that their rarity but makes more precious their lesson.

In those cases in which I have used sections from the tibia, sternum and rib—barring the sometimes serious osseous complications which are of such common occurrence from the removal of bone in these localities—I have found the compact outer plate too dense and hard to properly mould, and the graft frequently does not take, apparently rapidly losing its vitality.

In the past five years I have done this operation four hundred times using the middle turbinate as source of the graft. This bone is easy to shape and tolerates thermal sterilization without losing its vigor, and the results have been satisfying to my patients and gratifying to myself. At this juncture I would warn against using the inferior turbinate on account of its physiological importance. The

Fig. 8. Front and profile view of patient shown in figure 7, after operation.

Fig. 9. Saddle-back nose before and after operation.

middle turbinate is of less moment, its only functions being to drain and act as a protection to the ethmoidal cells.

In the surgical therapeusis for saddle-back nose, and by that I refer to those depressions resulting from faulty operation on the septum and absorption of the cartilage following injury and congenital non-syphilitic deformities*, I perform the following operation (rhinometathesis):

After rendering my field sterile and anesthetic as described in our articles on those subjects, (see figure 2) I use a pair of scissors to separate the middle turbinal bone from its insertion. This bone I remove intact with flat forceps. This part of the operation

*First and second grade depressions. Third grade depressions will be dealt with in a future chapter.

must be done with all gentleness, for should the future transplant be injured or crushed in its removal, not only will it offer resistance to reestablishment of circulation and so become necrotic, but it will be also of less value when filling the depression. Now carefully guarding against injury to its periosteum, I clip off with scissors all the mucous membrane and shape the edges to make its surface a proper fit for its future bed. I now subject it to a thermal sterilization of 143° F. in normal saline solution for four minutes. It is next thrown into a bath of a similar solution and washed free of all collagenous matter and debris by an assistant while I further prepare its future resting place. This is done by an incision just within the nose running from behind forward parallel to that line where the lateral cartilage is inserted into the septum. The incision must be no wider than the breadth of the transplant. Through this incision I insert my knife and with care form a pocket under the periosteum of the nasal bones and along the edge of the triangular cartilage. (figure 3)

Into this surgically formed cavity the transplant is now inserted where it must fit with comfort and without compression. (figure 4)

The transplant now in situ, I apply 3% iodine to the edge of the wound, and pack the anterior nares with sterile cotton. Ice compresses are applied over the nose for twenty-four hours.

In isografting and zoografting, the same procedure should be followed as far as the character of the pouch, the type of graft, its preparation and the immediate technic are concerned, with of course, the precautionary measures I have already related under those heads.

Saddle-back noses usually present a flat appearance. In most depressed noses the nasal bones, together with the frontal processes of the superior maxillary bone, have been bent downward; in other words, flattened on the face, producing a broad, flat nose (pachyrhinie), (figure 6) and a mere transplant will not be sufficient to make a good appearing nose. To narrow the width (rhinosyspasis), the frontal processes of the superior maxillary and nasal bones will have to be severed from the bed of the maxillary bone by sawing through the frontal process of the superior maxillary bone on each side and bending them inward. This will give the nose a higher appearance, and if on top of this is inserted the transplant, the nose will be in better shape. As all these flat noses have this wide base, the operation for transplantation will be as follows: instead of loosening all of the skin and periosteum over the whole nose and processes, I make three pockets. If I made one pocket out of the whole operation, the transplant would not remain in its bed. It would shift to either one side or the other of the nose, but leaving the periosteum attached to the bone alongside of the middle pocket, this will be prevented.

Patients can leave their beds in twenty-four to forty-eight hours, and if the nose is not subjected to pressure or the transplant disturbed, only a slight reaction takes place.

SARCOMA OF THE PROSTATE—REPORT OF A CASE.*

MAXIMILIAN STERN, M.D., and
I. SIDNEY RITTER, M.D.,
From the Urologic Service of the Broad Street Hospital. NEW YORK CITY.

Sarcoma of the prostate is a disease worthy of report, because of its rarity. The case here recorded is the thirty-sixth of its kind found in the medical literature to date.

In 1839, the first case of sarcoma of the prostate was reported by Stafford. It was a melanotic tumor in a child five years of age.

Ewing states that sarcoma very rarely occurs in the prostate, and that many of the cases so diagnosed are of uncertain nature.

Kettle states that sarcoma of the prostate rarely occurs.

Thompson in 1858 found six cases of sarcoma of the prostate in the medical literature reported to that date.

Kaufman and Burckhardt both reported in 1902 that they were able to collect 24 cases of sarcoma of the prostate in medical literature to that date. Kaufman further states that of the twenty-four, three occurred in infancy, seven in the first decade, and only seven between the ages of 30 and 70 years.

Bland-Sutton quote Proust and Vian as having collected up to 1907 thirty-four case histories of sarcoma of the prostate, the youngest occurring in an infant five months old, the oldest in a man 73 years old. Of the cases reported, about 50% occurred in individuals under eight years of age.

Hugh Young, of Baltimore, in 1910 reported the thirty-fifth case, occurring in an adult, which was of the mixed cell type.

CASE HISTORY.

J. W., age 45, was first seen on November 6, 1920, complaining for one week of burning urination. For the preceding two years he had been disturbed with frequency of urination, every two hours daily,

*Read before the Genito-Urinary Section of the New York Academy of Medicine, March 16, 1921

every three hours at night. To the above symptoms during the preceding year had been added urgency of urination. Aside from an attack of gonorrhea fifteen years before, his past history was negative. The family history bore no light on the etiology of the growth.

The patient was a fairly well nourished adult male, white, of a neurotic temperament. The eyes were clear, the pupils reacting to light and accommodation. Conjunctivae normal. The heart and lungs were entirely normal. Abdominal palpation, negative. Reflexes were slightly exaggerated, but not to an abnormal degree.

Fig. 1.

The external genitals were normal. Urethral smear showed an occasional pus cell and some colon bacilli. The urinary findings were normal. Prostatic smear was negative. Per rectum, the prostate gland was markedly enlarged, firm and regular. The enlargement involved the left lobe only. A tentative diagnosis of malignancy of the prostate was made, mainly from its consistency. An *x*-ray picture was then taken of the prostate with the bladder inflated with air. This showed (figure 1) a marked enlargement of the left lobe of the prostate, the catheter being deviated to the right, taking a peculiar curve through the prostatic urethra.

On November 13, 1920, cystoscopy was attempted but abandoned on account of the instrument meeting a marked obstruction in the prostatic urethra. Withdrawal of the instrument was accompanied by a great deal of bleeding, which subsided in about twenty-four hours.

Two prophylactic *x*-ray treatments were administered before any surgical procedure was essayed. On November 29, 1920, the patient received his first *x*-ray treatment; two days later he received a second one. About twenty-four hours after the second *x*-ray treatment, he complained of vesical symptoms, consisting of tenesmus, accompanied by a severe hemorrhage per urethram. He was put to bed, and a retention catheter inserted. After a few days the bleeding subsided, and on December 13th, a supra-pubic cystotomy was performed. A tumor about the size of a hen's egg was found to involve the

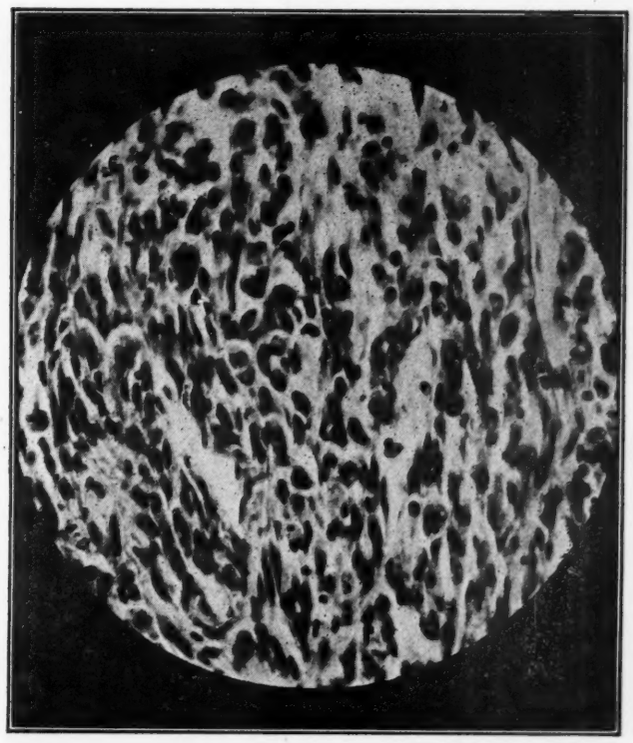

Fig. 2.

left lobe of the prostate. This was enucleated without difficulty. The mucosa of the bladder was normal. There was some bleeding from the prostatic cavity after removal of the growth, which was immediately arrested by packing with gauze saturated with thrombo-plastin. The specimen removed was sent to the laboratory, and on December 26th, Dr. M. J. Fein reported that it was a spindle-cell sarcoma of the prostate (figures 2 and 3.)

Under the supervision of Dr. William H. Dieffenbach, the patient was given 840 milligram-hours of radium treatment (35 milligrams for 24 hours screened through a silver tube), the tube of radium being inserted per urethram into the prostatic cavity. Immediately after the radium treatment, the patient was apparently relieved of vesical irritation, of which he had been complaining since the operation, but it recurred about two weeks later.

On February 7, 1921, the patient died, and at autopsy the growth was found to have extended so as to involve the entire bladder mucosa, and the abdominal wall from the pubis to the umbilicus. The

growth had also extended back to the rectum where it had eroded through into its lumen.

COMMENT.

Because of the rarity of this disease, we feel that a few important and interesting facts should here be stated.

Of the 36 cases thus far reported, there have been 11 different types of sarcoma found. Most of the tumors have been found to occur during infancy and early childhood. Only eight of the growths were found in men over 58 years of age. The tumor itself very frequently has been found to grow to a considerable size, so as to completely fill the pelvis, forcing the bladder upward and forward; at times producing no residual urine, and at other times, when

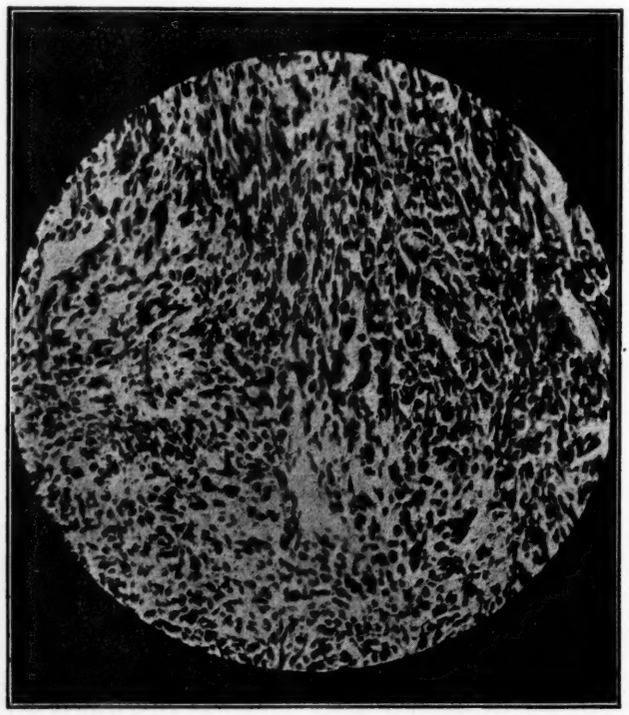

Fig. 3.

there is pressure upon the prostatic urethra, much residual urine is present. In Young's case, 44 ounces of residual urine were obtained.

The consistency of the tumor may vary from that resembling an abscess, soft, and apparently fluctuating, to a consistency simulating the stony hardness of sarcoma of bone.

Sarcoma of the prostate may have occurred, and probably does occur, more frequently than medical literature indicates; for the symptoms in these cases vary a great deal, as most patients do not complain of any pain or difficulty in urination until urinary obstruction develops. Pain is very rarely complained of before the growth has already done its damage, as in our case. In some cases, the diagnoses is not made because the patient complains only of constipation and difficulty in bowel movement from pressure or extension into the rectum. In a few cases reported, urinary retention was the first symptom of the growth. Hematuria is very uncommon in this condition.

The question of treatment arises. McGowan reports a case in which the patient was apparently cured, but died four years later of cancer of the liver. This is the longest any patient has lived after the diagnosis was made.

In the case here reported, we note that although the patient had been given prophylactic *x*-ray treatment, though there was an apparent complete removal of the growth at operation, and the patient had received 840 milligram hours treatment with radium, yet within two months the growth, which at the time of operation was limited to the left lobe of the prostate, had extended so as to involve the entire bladder, rectum and abdominal wall.

Had a positive diagnosis been possible pre-operatively, more could have been accomplished by a simple cystotomy accompanied by *x*-ray and radium treatments, than by any known surgical procedure.

219 WEST 81ST STREET.

PRIMARY SARCOMA OF THE INTESTINES. A REVIEW OF RECORDED CASES.

HYMAN I. GOLDSTEIN, M.D.,
Assistant in Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia.
CAMDEN, N. J.

During the past year I studied the literature on sarcoma of the gastro-intestinal tract, including the gall-bladder, pancreas, and liver. In June, 1920, before the Pathological Society of Philadelphia, I reported a case of primary sarcoma of the appendix and reviewed the 16 cases on record in the literature. (*American Jour. Med. Sci.*, 1921).*

I was able to find 130 cases of primary sarcoma of the small and large intestines, including the rectum. I collected 265 cases of primary sarcoma of stomach, including a few cases that I was able to collect from several surgeons and clinicians, that have not been reported. Fifty-nine cases of primary sarcoma of the liver, 21 cases of sarcoma of the esophagus, 65 of the tongue, 19 of the pancreas, and 16 cases of primary sarcoma of the gall-bladder were found in the literature.

*G. H. Semken, on February 23, 1921, reported before the New York Surgical Society, a case of fibro-sarcoma of the appendix in a man. If this was a true primary sarcoma of the appendix, there are now 18 cases on record, including my own case.

A brief review of the literature on intestinal sarcoma may not be without interest.

PRIMARY SARCOMA OF THE SMALL INTESTINES.

E. A. Bjorkenheim, *Zentralbl. f. Gynäk,* October 5, 1921, No. 40, reported a case of primary sarcoma in the small intestine.

Douglas, *Ann. Surg.,* March 1912, LV., No. 3, reported a case of sarcoma of the small intestine. This will be mentioned again later.

R. Patek reported in the *Zentralblatt f. Gynäk,* March 22, 1913, No. 37, a case of primary sarcoma of the small intestine.

W. Wortmann, in *Deutsche Zeitschrift f. Chir.,* June, 1913, wrote on "Sarcoma of the Intestine" and reported a case.

R. W. Hammack, of Manila, wrote on primary sarcoma of the small intestines. His paper appears in the *Philippine Journal of Science,* April 8, 1913.

Hammack (1913) analyzes 3 cases of primary sarcoma of the small intestine. Of the types of sarcoma found, lymphosarcoma is the most frequent, but spindle-cell, round-cell, and melano-sarcomas as well as endotheliomas occur. The tumor most frequently occurs as a spreading, infiltrating growth completely or nearly encircling the intestine, but may occur as a polypoid mass projecting into the lumen. The growth is usually confined to the intestinal wall, leaving the serosa intact. Ulceration, on the other hand, is frequent and may cause perforation. It is remarkable, however, that very extensive infiltrations of the intestinal wall, including the mucosa, can take place without ulceration. Dilatation is more frequent than stenosis. This is apparently due to the widespread infiltration and destruction of the muscular coats with possibly the additional factor of accumulation of intestinal contents on account of the absence of peristalsis. The annular type of tumor, however, can cause constriction. When complete obstruction occurs, it is most often by direct extension from the metastatic growths in the lymph nodes. All of the cases presented by Hammack were lymphosarcomas, and all exemplified the annular form, while one showed the infrequent condition of stenosis. In all there have been metastatic growths in the abdominal lymph nodes with more or less widespread extension from these. In but 1 case, in which there was a small nodule in the heart, was there metastasis beyond the abdomen.

C. Williams, of Batterson, La., reported a case of sarcoma of the small intestine in the *New Orleans Med. and Surg. Jour.,* September, 1913, No. 3.

Morton (1916) reports 3 cases in his article. The first case showed a tumor composed of many hydatid cysts growing within the abdomen, and protruding into an unbilical hernia so as to form a large pendulous growth. The second case was one of sarcoma of the small intestine, causing recurrent attacks of obstruction. The third case was a malignant growth of the colon, causing obstruction and was associated with phthisis in a man of 21.

C. Pavesio, in *Riforma Medica,* June 26, 1911, (Naples), writes on multiple sarcomas in the small intestine with report of a case. Goto reported on Intestinal Sarcoma in 1911. Lilley's case (*Lancet,* August 5, 1911), was a melanotic sarcoma of the liver, secondary to a melanotic sarcoma of the eye removed by operation ten years previously.

C. J. Miller's case of sarcoma of the intestine was complicated by invagination of the ileum. (*Surg. Gyn. and Obst.,* August, 1913, 17, No. 2).

John Speese, of Philadelphia reported a case of lymphosarcoma of the ileum in a man aged 50, and a myxosarcoma of the mesentery in a woman aged 57, (*Ann. of Surg.,* May, 1914, LIX, No. 5, p. 727-738). These patients were in the service of Dr. John B. Deaver of the University Hospital, Philadelphia.

Farr's case of primary sarcoma of the large intestine, I already mentioned, (*Ann. of Surgery.,* Dec., 1913, LVIII No. 6), in another paper.

L. S. Mackid reports a case of sarcoma of the intestine in a child aged 7 years. (*Canadian Med. Assoc. Jour.,* April, 1916, VI, No. 4).

Graham (*Brit. Med. Jour.,* Vol. II: 801, 1916), reports a case of ileocecal intussusception in a boy aged 14 years, who was operated upon May 30, 1916, and agair. July 11, 1916, when an irreducible intussusception was found. At the second operation four inches of the ileum were excised. Section of the excised bowel showed the presence of small, round-celled sarcoma.

The thirteen cases (as mentioned in my article on gastric sarcoma) of undoubted *primary sarcoma of the stomach* operated upon at the Mayo clinic between 1908 and August, 1920, are briefly abstracted in Haggard's article on the subject. There are 8 men, 1 boy aged 16 years, and 4 women, in the series. This is the largest single series of cases of primary gastric sarcoma operated upon in any one institution.

Peritoneum, Malignant tumors of the peritoneum are very rarely primary. Sarcomata have been reported as commencing primarily in the peritoneum.

Tillmann in his discussion mentions (Munro) endotheliomata that arise from a proliferation of the endothelial cells of the lymphatic vessels and of the peritoneum itself.

Steel (1904 *Amer. Journ. Med. Sciences*) collected 96 cases of retroperitoneal sarcomata. He found one case in a baby under one year and another in a patient 80 years old. When a solid tumor is felt in the retroperitoneal space (as in the hypochondrium. or the pelvic or iliac regions), and is

fairly firmly fixed, or immovable, and practically not shifted by respiration, primary or secondary sarcoma must be thought of.

In twenty solid retroperitoneal tumors, collected by Rogowski, he found sarcomatous growths in every one. They were nearly all encapsulated (those in early stage).

Marconi operated on one case with good results. He removed a huge prevertebral lymphosarcoma and resected a portion of the vena cava.

Munro (1910) in Keen's Surgery, p. 779, III, refers in his bibliography to the cases of sarcoma (retroperitoneal) and the articles published by Williams (1903), Steel (1904), Noble (1904), Naumann and Lundberg (1902), Marconi (1894), Jacobsthal (1903), Balloch (1904 and 1903), Douglas (1903), and Fiori (1904).

Webster, of Baltimore, (December 1920), discusses the relationship between leukosarcoma, lymphosarcoma and lymphatic leukemia. He cites one case beginning as a localized tumor of the chest developing a typical lymphatic leukemia after roentgen-ray treatment. The glands were enlarged all over the body, the liver and spleen descended below the costal margin. He believes that a localized lymphosarcoma may, under certain conditions, become generalized and with a blood picture of lymphatic leukemia may terminate as a leukosarcoma. He emphasizes the fact that a lymphosarcomatous tumor, regardless of its primary site, extends and spreads in a characteristic manner first by local infiltration and later by the blood stream to parenchymatous organs, lymph glands, bone marrow, etc.

Kemp (1910) says "sarcoma of the intestines is rather an infrequent disease, much less frequent than carcinoma". In the course of 12 years, 1882-1893, in the Vienna General Hospital, among 274 autopsies on sarcoma, only 3 were of the intestine, the ileum, cecum, and rectum. In 61 cases of lymphosarcoma examined post-mortem, 9 were of the intestines, 1 in the duodenum, 3 in the jejunum, 3 in the ileum, and 2 in the cecum. In Libman's cases, 15 were duodenal, 18 jejunal and ileal, 14 of the ileum, and 3 were of the entire small intestine. In Krueger's 37 cases, 16 were in the small intestine alone, and 16 were rectal sarcomata, next in frequency were the ileo-cecal tumors. Kemp believes sarcoma occurs as frequently in the small as in the large bowel, and lymphosarcoma preponderates in the small intestine. They do not produce stricture of the bowel, as mentioned above. Müller examined the post-mortem material in Bern and of 102 sarcomata only one was a sarcoma of the ileum (the only intestinal sarcoma).

In Prague, in 13,036 sections in 15 years, there were only 13 intestinal sarcomata; ileum 7, jejunum and ileum 3, cecum 3—all were lymphosarcomata.

Sarcoma of the large bowel is most frequent in the rectum.

Smoler mentions 13 cases involving the entire intestinal tract; 3 were in the ileo-cecal region.

Schmidt, Engstroem, Blauel have each reported 2 cases.

Nothnagel states he encountered two cases of sarcoma in the colon, one in the ascending and one in the descending colon; one was a lymphosarcoma.

Glinski reported a case in which the entire large bowel was involved. Treves reported a case of primary melanosarcoma of the ileum. Strasburger (1894), collected 9 cases of melanosarcoma of the rectum. Jopson and White (1901) collected 22 cases of primary sarcoma of the colon, while Libman, of Mt. Sinai Hospital, N. Y., collected 59 sarcomata of the small intestine. In Libman's series, the youngest patient was 5 days old, the oldest was aged 70 years. Of 49 cases, 35 were males and 14 females; more than 50% of the cases occurred between the ages of 20 and 40 years.

Ablon (1898) found 10 cases of sarcoma of the intestine in children.

Vanderlinden (1899) and DeBuck, Ball, Heaton, reported melanosarcomata of the rectum. Rolleston states, "sarcoma of the vermiform appendix is very rare indeed", and mentions Warren's, Paterson's, and Glazebrook's cases.

Babes and Nanu (1897) reported a very large myosarcoma in the small intestine. Pic collected a number of cases of primary lymphosarcoma of the duodenum. Sarcomata of the intestine in the great majority of cases have their starting-point in the submucous layer of the bowel.

Madelung's case of intestinal sarcoma occurred in a boy of four. Horn's case was one of congenital sarcoma of the descending colon with intussusception of the intestine, ending in the death of an infant 3 days old.

E. Libman reports 5 cases of sarcoma of the small intestine from his own experience; in 3 of the cases the resemblance to appendicitis was remarkably close.

Nothnagel (1903) cites one case of lymphosarcoma of the jejunum in a woman aged 23 years. She was treated for tuberculosis of the peritoneum and intestine. She was sick a year and a half. The patient complained of diarrhea, and violent abdominal pain from the beginning of her illness. She was only slightly emaciated. Her hemoglobin (Fleischl) was 45%. Weichselbaum performed the autopsy and tedious operation. The work should be done as found numerous lymphosarcomatous masses in the seat of the tuberculous ulcerations that had become cicatrized. In some of the cicatrices, isolated little tumor nodules were found, either at the margin of the ulcer or at their base. The large bowel was normal.

Wood (Delafield and Prudden's Pathology, 11th edition), refers to Jopson and White's (1901) studies on the subject of sarcoma of the large bowel. He states that "sarcomata of the intestine are of occasional occurrence. They are rare in the large intestine, with the exception of the rectum".

Wilner (1899) reported a case of melanotic sarcoma in the small intestine, and Vander Veer and Keller (1917) reported on melanosarcoma of the rectum.

In discussing Eisenbrey's paper on intestinal lymphosarcoma, Libman emphasizes the clinical resemblance of these causes to appendicitis. Lymphosarcoma of the intestine, according to Eisenbrey and others, is the most common type of sarcoma of the bowel.

No case of sarcoma of the small intestine was observed in the Berlin Pathological Institute from 1859 to 1875. Baltzer states that 57.8% of the cases occur in the fourth decennium. VanHook and Kanavel (1910) refer to Libman's "extraordinary experience with the rare sarcomata of the small intestine", and his "extensive study of the literature of the subject".

Madelung, according to VanHook and Kanavel, did not find a single case of sarcoma of the splenic flexure of the colon in his search of the literature.

Abbe (1910) states that primary sarcoma of the rectum is very rare. The most frequent type of sarcoma found in the rectum is the melanoma. Schlesinger has described endotheliomata of the rectum. The growth develops from the endothelium of the dilated vessels present in hemorrhoids.

Gerster reported 2 cases of sarcoma of the intestinal tract—one duodenal and one jejunal.

Orth, in 1890, collected eleven cases of intestinal sarcoma, (3 small intestine, 4 large intestine, and 4 rectum).

Baltzer's very complete paper was published in 1892. He reports 3 cases and analyzes 11 cases from the literature.

Van Zwalenberg collected 15 cases of resection of the bowel for sarcoma, and published the paper in the *Journal of the Am. Med. Ass.,* March 9, 1901. Jopson and White collected a total of 22 cases of sarcoma of the large intestine, including their own case. They include in their list the cases reported by Arnott (1874), Horn (1882), Debrunner (1883), Beck (1884), Debrunner's second case (1883), Lange (1886), Bouilly (1888), Orth (1890), Baracz (1891), Wharton, (female, 2 years old, 1894), Becker (1894), Wharton (male, aged 21 years), Abbe (1895), Levi (1895), Smoler (1898), Smoler (1898, second case), Blauel (1900, male, 33 years), Blauel (female, aged 66 years, 1900), Fisher (1901, male, 28 years), C. Van Zwalenberg (1901, boy aged 5 years), Hofmokl (female, aged 24 years, lymphosarcoma of cecum), and Jopson and White (boy, aged 4 years).

Jopson and White's case was John C. aged 4 years. The autopsy was performed 24 hours after death. Spleen not enlarged. The liver was greatly enlarged. Gall-bladder normal. The stomach, small intestine and suprarenal glands normal. The cecum and appendix infiltrated, especially along the mesenteric attachment, with a direct continuation of the growth. The retroperitoneal and mesenteric lymph glands enlarged.

According to Ablon, of 10 cases of sarcoma of the intestine studied by him, 2 were in the large bowel.

Fisher's case was a cecal sarcoma in a man aged 28 years. Patient had epistaxis, swelling and bleeding of the gums, and a purpuric rash.

Fagge's case (1881) was one of sarcoma of the end of the ileum and ileocecal valve. This patient had sarcoma of the skin.

Wharton's case (1894) was a female baby aged 2 years, with a round-cell sarcoma of the cecum. Wharton's other case was in a man aged 21 years, with a round-cell sarcoma of the cecum. Both cases presented symptoms resembling appendicitis, similar to Libman's cases of sarcoma of the small intestine. Jopson and White exclude the cases reported by Djemil-Pacha (1896), Perceval (1818), and Thorne (1872). Of their 22 cases, 12 were in males and 10 in females.

Horn's case (1882) in a young girl was a spindle-celled sarcoma of the descending colon; there was almost complete obstruction.

Djemil-Pacha's case (1896-7) was a sarcoma of the great omentum and transverse colon; the primary growth was probably in the omentum.

Perceval's case was probably a sarcomatous polyp of the colon. The report was published in the *Journ. Assoc. King's and Queen's Coll. Phys.,* Ireland, (Dublin 1818, ii, p. 125).

Libman's cases occurred in:

(1) A boy aged 12 years. Large growth in duodenum. Stomach and pancreas diffusely infiltrated. Liver normal. Omentum and mesentery infiltrated with neoplastic masses. The gall-bladder and liver also involved in the general lymphosarcomatosis.

(2) A 3½-year old child, with primary intestinal sarcoma with dilatation and very extensive metastases —peritoneum, spleen, pancreas, adrenals, kidney, liver and gall-bladder. The appendix 11 cm. long, the wall much thickened and infiltrated by new growth. The stomach wall whitish and thickened. In the ileum several very large tumor masses 7 x 8 cm. This was a lymphosarcoma.

(3) A patient 18 years old. Jejunum involved by lymphosarcoma. A perforation through the tumor mass. No metastases. The diagnosis clinically was

general peritonitis, probably due to perforation of appendix.

(4) A man aged 42 years. A large tumor of the ileum was found, at operation by Dr. Brewer. This was a spindle-celled sarcoma. There were no metastases. The case closely resembled acute appendicitis.

Schulz, (*Archiv. fuer Heilkunde,* XV, 193), noted several cases of lymphosarcoma of the liver, intestines, stomach and kidneys.

Libman gives a discussion of the differential diagnosis of sarcoma of the small intestine in his paper, and includes 52 references to the literature on intestinal sarcoma.

Fisher's two cases (1919) occurred in:

(1) A man aged 61, laborer; at operation a lymphosarcoma of the ileum was found. He died 10 months after operation, from probable recurrence associated with an acute hemorrhage.

(2) A woman aged 67 years. She had a large lymphosarcoma of the colon (ascending) and cholelithiasis. A two-stage operation was performed. She made a good operative recovery.

Ford (1900) states that primary sarcomas of the liver are exceedingly rare, and he mentions the cases of Horup, Lancereaux, Arnold, Windrath, Waring and von Kahlden. Ford's case was a man aged 65 years. He had ascites. A small round and spindle-celled tumor was found in the right lobe of the liver, 5 x 8 cm. in size. Pancreas, spleen, thyroid, heart and suprarenals normal. The stomach, intestines and rectum normal. The mesentery, omentum and peritoneum showed numerous secondary neoplastic nodules. The tumor in the liver was probably primary.

Harrigan's case (1918) was a hypernephroma of the falciform ligament of the liver.

Von Esmarch stated that in his clinic more than 60% of his sarcoma patients were syphilitics. Speese (1914) in his paper collected 74 cases of sarcoma of the small intestine, for which resection of the bowel was done; 14 of these were complicated by intussusception. Kasemyer found sarcoma as a cause in 26 cases of a total of 284 cases of intussusception collected by him. Boas collected 37 cases of sarcoma of the intestine; of these 16 occurred in the small intestine and 16 in the rectum. The appendix was affected in one case.

In Thévenot's case (June, 1919), and in one reported from Athens, the sarcomatous polyposis of the small intestine was secondary to a sarcoma in the mediastinum or rectum. In both the polyposis induced invagination.

Bull's case (February, 1919) was a huge retroperitoneal myxofibrochondro-sarcoma, followed by recovery after its removal. Patient had had abdominal pains as the first symptom 10 years before; 6 years later the tumor became palpable. It weighed 15.5 kg., (over 34 pounds) after removal. The man was aged 54 years, a machinist.

Battle's case, (April, 1920) of recurring sarcoma of the small intestine in a child 8 years old, was associated with intussusception. The growth was a round-cell sarcoma (Shattock). Coley's fluid was used in increasing doses. She was first seen in 1913. In July 1916 she was again operated upon. At this time a large mass involved the small intestine about 6 inches from the cecum. Seven years after the beginning of her abdominal trouble she appeared in good health.

Vander Veer and Kellert's case (July, 1917) of melanotic sarcoma of the small intestine occurred as a primary growth in the ileum. The patient was a woman aged 50 years. She had a cough which was thought to be tuberculous in origin. She then coughed (1915) up some tissue, which upon examination was found to be possibly sarcomatous. She had pain for 4 or 5 weeks in left hypochondrium before coming to the hospital. She had an attack of acute intestinal obstruction, due to intussusception in the middle section of the ileum. Six inches of small intestine was resected. Holmes reported the tumor as a primary melanosarcoma of the intestine.

Douglas (1912) reviewed the collected cases of sarcoma of the small intestine.

Mayo (November, 1916) stated "carcinoma (primary) of the ileum is a very rare condition"; primary ileal sarcoma is even rarer. There are only about 8 recorded cases of primary carcinoma of the ileum.

Vander Veer states this condition is "most rare." In tumors of the intestine, the ileum is the most frequent site of the tumor, next the jejunum, then the ileo-cecal region, and lastly the duodeno-jejunal junction.

Berghausen (April, 1920) reports a case in a 40-year old man with positive Wassermann reaction, who had abdominal lymphosarcomatosis. Anti-luetic treatment did not do any good. The patient died soon after operation. Berghausen's second case occurred in a man aged 47 years. There was a strong family history of tuberculosis. The Wassermann reaction was strongly positive. He was emaciated and died of internal hemorrhage about a year and a half after the beginning of the illness. The liver and stomach were involved, as were also the mesenteric, retroperitoneal, and mediastinal lymph nodes, by the gen-

eral lymphosarcomatosis. The spleen, lungs and the right tonsil were involved in the tumor process. A huge sarcomatous mass was adherent to the transverse colon, both the flexures, the stomach and spleen. Aortitis (syphilitic) was present.

MacConnell (1883) before the Pathological Society of Philadelphia reported a case of sarcoma of the rectum, in a man aged 40 years. It was a small spindle-celled sarcoma. The man's illness was of several years' duration. The growth weighed from one to one and a half pounds.

Robert's case (March, 1884) in a woman aged 58 years, who had been ailing for 4 years, may have been one of sarcomatosis affecting the omentum, mesentery, peritoneum, rectum and intestine. Although it was probably shown as a carcinoma—only "malignant disease" was mentioned.

Mitchell's case (1885) of "encephaloid disease of the stomach" may have been a sarcoma; there were 16 pints of clear yellow fluid in the abdominal cavity. The omentum was very hard and covered with nodules, and the mass was adherent to the intestines and the stomach. It looked like a diffuse carcinoma. Henry, however, found no cancer cells. W. A. Edwards thought the nodular omental masses might, on microscopic examination, throw some light on the case. The man was a teamster, aged 63 years.

J. H. Musser (September 11, 1884), reported before the Pathological Society of Philadelphia a case of secondary sarcoma of the liver and ovary from a primary growth in the skin, in a woman aged 28 years. Spleen enlarged to twice its normal size. Inguinal glands matted together and enlarged. No mention made of the stomach and intestines. It was an alveolar sarcoma, (Formad).

James Tyson's case (February, 1885) was one of sarcoma of the retroperitoneal glands in a man aged 43 years.

Carl Seiler (September 27, 1883) reported a case of general melanosis—melanotic nodules were present in the liver, brain, skin, etc. A congenital nevus was removed from the scapula a half year before his death.

Edwards reported (November 9, 1882) before the Pathological Society of Philadelphia a case of large spindle-celled sarcoma of the small intestine in a woman aged 48 years. The growth sprang primarily from the submucous tissue of the small intestine, and grew with great rapidity. Edwards stated that the small intestine is an unusual site for sarcoma, and he was unable to find another instance of its occurrence in this situation. No secondary deposits were found at operation. No autopsy was permitted.

Gaucher (*La France Medicale*, No. 37, 1883) records a unique case of primary diffuse sarcomatous disease of the entire peritoneum, with autopsy. It was a globulo-cellular sarcoma. The lungs were normal; no neoplastic nodules were found in any viscus, nor any enlarged glands.

Norman Moore's case (1883) occurred in a woman aged 41 years. The lumbar glands were greatly enlarged. The duodenal wall was invaded by the growth and thickened, and the mucous membrane was ulcerated. No other organs were involved by the lymphosarcoma. The patient was sick 8 months. This was a primary lymphosarcoma of the duodenum, if the lumbar and mesenteric glands can be excluded as the primary seat.

Molson and MacDonald (May, 1882) reported a sarcoma of the jejunum in a plasterer aged 41 years. He had general dropsy. Autopsy by Osler. It was an enormous growth involving about 18 inches of the jejunum. The walls of the gut were infiltrated with the neoplasm, being in places 6 to 8 inches in thickness. There were numerous secondary nodules in the kidneys. Osler thought it was a primary large round sarcoma of the jejunum with metastases in the kidneys.

Hulbert (February 28, 1885) reported before the St. Louis Medical Society a case of a very malignant (Bremer) small, round-cell sarcoma of the intestine. A large part of the small intestines, the descending colon, kidneys, spleen and mesenteric glands were involved. The patient was a woman, aged 35 years.

Douglas (1912) reported a case of lymphosarcoma in a Turk aged 20 years. He was admitted to the Bellevue Hospital on July 1, 1911. Douglas mentions Moynihan's collection of 40 cases of sarcoma of the small intestine submitted to operation up to 1906, and of Lecène (1907) who includes an analysis of 89 cases, operative and non-operative. Additional cases have been reported by Goebel, Stern, Anderson, Endmann, McGlinn, Barling, Bondareff (2 cases, 1908), Leroy, Munk (6 cases of small intestinal sarcoma and one of splenic flexure), Fletcher (1909), and Scudder (lymphosarcoma of small intestine, with resections).

(*To be continued*)

GASTROSTOMY AND COLOSTOMY.

Colostomy and gastrostomy for inoperable cancer are legitimate operations; but their nature should be explained to the patient himself, if his mind is clear, and he should be allowed the opportunity to decide whether or not he will accept what the surgeon can give him in exchange for what he takes away.

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WALTER M. BRICKNER, M. D., F. A. C. S., Editor.
New York City

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SYPHILIS AND SARCOMA OF THE BONE.

It sometimes happens that bone syphilis is mistaken, by the surgeon or by the roentgenographer, for sarcoma. This mistake which, uncorrected, is disastrous to the patient, arises in cases of luetic periostitis or osteo-periostitis or in case of osteal gumma, especially when, as occasionally happens, it produces a pathological fracture. The error is, of course, most apt to arise in cases where the Wassermann reaction is negative, as sometimes happens in these late manifestations of the disease. In Eric Lexer's "General Surgery" (Bevan's American edition, 1908) occurred the statement that "roentgen-ray pictures reveal nothing characteristic" in bone syphilis. Nothing in medicine could be much further from the truth. The roentgen appearances in syphilis of the bone are usually quite characteristic and in most cases the diagnosis can be made unequivocally by this means, even in the face of a negative Wassermann reaction. To be sure, in some cases of chronic osteo-periostitis the roentgenographer may not be able to state whether the lesion is of pyogenic or luetic origin, sometimes in joint affections the roentgen findings may not be wholly determining, occasionally in infantile dactylitis the picture may show borderline conditions of doubtful interpretation, rather than the *x*-ray characteristics that distinguish syphilis from tuberculosis. But even in these conditions doubtful roentgen findings are the exception; and certainly there should be no doubt in the roentgen differentiation between syphilis and neoplasm of the bones.

A gumma of the bone appears in the *x*-ray film as an area of bone absorption. But there its resemblance to a central sarcoma ends. Even when the disease involves the corticalis sufficiently to cause a pathological fracture, it does not produce *expansion of the bone* and *eggshell-like thinning out of the corticalis* as does the central sarcoma. On the contrary, the gumma is surrounded by an area of much *increased bone density,* clearly visible in the film. There will also be seen in the picture, usually if not always, the evidence of a *periostitis.* This, by its very presence as well as by its characteristics, excludes sarcoma, for central sarcoma is not accompanied by periostitis, and central and periosteal sarcomata are not found together.

Moreover, there is little resemblance between the *x*-ray shadows of luetic periostitis and those of periosteal sarcoma. In syphilis the periostitis is often circumferential; it may be circumscribed or scattered but often it covers much or all of the length of the bone; it may be of irregular thickness; but the shadow or shadows are often dense and are *sharply outlined* and *extend along the shadow of the bone* itself. In periosteal sarcoma, on the other hand, the shadows are *not sharply outlined,* they are *not dense in their periphery,* where they *fade out* in the surrounding tumor (which itself appears more or less faintly in the picture) and they *do not hug the bone;* on the contrary, they are *blotchy, wavy or fringe-like* and may appear to radiate from the bone in images that suggest a resemblance to swirls of sand in a storm.

ORTHOPEDIC ISSUE

The next (September) number of the JOURNAL will be a special issue devoted to Orthopedic Surgery. It is to contain the following articles:—The Treatment of Joint Tuberculosis, by Leonard W. Ely, San Francisco; Operative Correction of Long-standing Erb's Palsy, by James Warren Sever, Boston; The Free Transplantation of Tendons, by Leo Mayer, New York; The Use of Tendon Implantation for Paralytic Deformities, by W. Edward Gallie, Toronto; Bow-legs, by Wallace Blanchard, Chicago; Scoliosis, by Samuel Kleinberg, New York; Hemorrhagic Osteomyelitis, by George Barrie, New York; Contractures Following War Wounds, by André Leri, Paris; Operative Treatment of Osteoarthritis of the Hip, by Fred. H. Albee, New York; Use of the Ordinary Wood

Screw in Certain Fractures of the Neck of the Femur, by T. Turner Thomas, Philadelphia.

WALLACE C. ABBOTT

Dr. Wallace C. Abbott of Chicago who died on July 4th, was a picturesque figure, and a highly useful member of the American medical profession, in which he was widely known—both as editor-in-chief of *The American Journal of Clinical Medicine,* and as founder and president of the Abbott Laboratories (formerly the Abbott Alkaloidal Company). Unquestionably, his preparations of accurate alkaloidal extracts and his unceasing preachments concerning their use, profoundly affected the therapeutics of thousands of practitioners, while his more recent activities in manufacturing here many synthetic drugs formerly controlled by German houses, and many other scientific preparations for surgical and for medicinal use, have constituted a notable contribution to American pharmacology and American trade. In all his affairs his enthusiasm was boundless and his energy tireless. He probably sacrificed several years from his life by his ceaseless work. He will be missed by the associates and friends who drew inspiration from his dynamic personality.

Progress in Surgery

Selections from Recent Literature

H. Lyons Hunt, M.D., L.R.C.S. (Edin.), Abstract Editor.

A Critical Analysis of Twenty-One Years' Experience with Cesarean Section. J. WHITRIDGE WILLIAMS, Baltimore, Md., *Bulletin of The Johns Hopkins Hospital,* June, 1921.

1. This analysis is based upon 183 Cesarean sections performed up to December 31, 1920.

2. The operations were done in a series of approximately 20,000 deliveries, and comprise 104 single, and 79 repeated sections. The latter were done upon 41 women, 34 of whom had two, and 7 three sections each.

3. Although the number of white and black patients in the service was approximately identical, many more Cesarean sections were done upon the latter—114 to 69, while 30 to 11 required repeated sections.

4. The following types of operation were done:

121 typical conservative sections.
4 extraperitoneal sections.
1 post-mortem section.
57 Porro sections.

5. The gross mortality was 5.46% but, upon deducting cases in which death was not attributable to the operation, the net mortality was 3.45%; or 4.07% in the conservative and 1.82% in the Porro sections. All deaths, except one from hemorrhage, were due to infection.

6. The mortality was 13 times greater in the first 50 than in the last 133 cases—10 to 0.77%. This remarkable diminution was not due to changes in operative technique, but to the avoidance of ascending infection by operating before the onset, or during, the first hours of labor.

7. The conservative section late in labor is always dangerous, even if vaginal examinations have not been made; while the Porro section is relatively safe. The most important means of lowering the mortality of conservative Cesarean section due to disproportion is by learning to determine before the onset of labor whether the operation will be required or not.

8. The Porro operation is relatively safe even in infected or exhausted patients, as the absence of the involuting uterus hinders the spread of infection.

9. Disproportion due to contracted pelvis was the indication for interference in nine-tenths of the black, and in six-tenths of the white patients.

10. The several varieties of rachitic pelvis afforded the predominant indication in the blacks, as compared with the simple flat pelvis in the whites.

11. The most frequent non-pelvic indications were eclampsia, and serious cardiac decompensation.

12. Cesarean section is not the ideal treatment for eclampsia, and is indicated only in the rare instances in which the cervix is rigid and undilated and venesection has not led to improvement.

13. It is likewise only rarely indicated in placenta previa. But one section was done in 66 cases, and insertion of the rubber balloon is regarded as the best treatment.

14. Generally speaking, the patient should be sterilized at the third section, either by amputating the uterus or by an operation upon the tubes.

15. Abdominal incisions are made below the umbilicus, as this permits amputation of the uterus or operations upon the appendages, when necessary, without extending the incision.

16. The uterus should be incised in situ, and eviscerated before incision only in the presence of infection. Experience indicates that in normal cases the latter procedure increases the incidence of infection.

17. The uterine incision should be sutured in layers, and the greatest care taken to insure the closest approximation of the peritoneal margins.

18. The uterine cicatrix ruptured once in 48 women with repeated sections, as well as in 12 deliveries through the natural passages subsequent to section. The frequency of its occurrence is probably exaggerated so that the dictum "once a Cecarean always a Cesarean" is not necessarily correct. On the other hand, the possibility of rupture must always be faced and it constitutes the strongest argument against the unnecessary employment of Cesarean section for non-pelvic indications.

19. The placenta was inserted upon the anterior wall of the uterus in two out of every five cases. Consequently it is frequently involved in the uterine incision. This has no other significance than a momemtary gush of blood.

20. The delivery of an asphyxiated child occurs less frequently than is generally believed. Somewhat over one-half of the children cried immediately after delivery, and only 7 per cent. were deeply asphyxiated.

21. Notwithstanding the extraordinary value of pituitary extract in stimulating uterine contraction, pronounced atony with danger of death from hemorrhage is still to be reckoned with, and necessitated amputation of the uterus in two of the patients.

22. Uterine adhesions were absent in one-quarter of the repeated sections, and were extensive in one-third of them. They are not necessarily the result of infection, as the puerperium was normal in 36 per cent. of the cases in which they developed. In many instances they appear to be associated with imperfect approximation of the uterine wound or with other traumatic factors.

23. The old superstition that boys originate from the right and girls from the left ovary can be definitely discarded. In two-thirds of the patients the corpus luteum persisted until the end of pregnancy, and its location bore no relation to the sex of the child.

24. Finally, it should be remembered that Cesarean section is not devoid of danger, and is relatively safe only when done under appropriate conditions before the onset or during the first hours of labor.

As the uterine cicatrix constitutes a locus minoris resistentiae in subsequent pregnancies Cesarean section for other than pelvic indications should be performed only when absolutely necessary. It is the writer's conviction that the operation is being abused throughout the country, and if accurate statistics as to its results were available that it would be found to be accountable for many unnecessary maternal deaths. It should be recognized that, although it is frequently the easiest manner of delivering the patient in the

presence of various abnormalities, it is not always the safest, and that ideal results are obtained in only a few clinics.

Repeated Cesarean Section. PAUL TITUS, Pittsburgh, Pa., *The American Journal of Obstetrics and Gynecology*, May, 1921.

A detailed account of the clinical history of 16 cases is given. They are divided into two groups,—the first consisting of ten patients whose first and second operations were the classical Cesarean section, the second comprising three women whose first operation was an extraperitoneal Cesarean section, while the second was a classical. Their fields are quite definite and must not overlap. There are, however, many cases which do not fall into either category. A woman might have been examined vaginally several times, or it might have been desirable to give a patient a prolonged test of labor if her pelvis were only moderately contracted, or there might have been one or two attempts at the artificial delivery of a patient, all of which would increase the likelihood of contamination and infection, and render the classical Cesarean section distinctly dangerous. The safety limits of the classical operation are sharply drawn. In the cases cited, suprasymphyseal and transperitoneal Cesarean section, done according to the technic of Frank has been chosen wherever contamination if not actual infection was suspected. This or the Kroenig-Gellhorn operation is employed in all patients who have been in labor any considerable length of time, even though no vaginal examinations have been made. Summarizing, the author states:

1. The method of Cesarean section to be employed in a given case depends upon the conditions and circumstances surrounding the case. The choice may be made between the classical conservative Cesarean, the low cervical Cesarean of Kroenig-Gellhorn, the extraperitoneal Cesarean of Frank and the Porro Cesarean section.

2. Good results follow the performance of Cesarean section either before labor has begun, or soon after its commencement.

3. Repeated Cesarean section is a comparatively safe operation if done under proper circumstances, both maternal and fetal mortality being low.

4. There seems to be a definite relationship between the occurrence of fever during the puerperium and the formation of abdominal adhesions.

5. "Test of labor" is often followed by a febrile puerperium.

6. Adhesion formation between the uterus and the abdominal wound occurred in each of the three cases in this series in whom the low abdominal incision was employed. Results in this respect from the high incision of Davis for classical Cesarean section are greatly superior.

7. Careful coaptation of the edges of the uterine wound, from the endometrium out, will, in the absence of infection, insure a firm, thick union, in which there is a tendency to muscle regeneration.

8. Rupture of the uterus is a possibility in each repeated pregnancy, but is unusual unless there has been infection in the puerperium of a preceding pregnancy.

9. Extraperitoneal Cesarean section is the operation of choice when contamination or infection is suspected. The anatomic distortion following this operation is not great, although quite definite.

10. Sterilization of a patient is inadvisable at the first Cesarean section unless some special reason exists for it.

11. Sterilization after repeated Cesarean section must depend upon the needs, pathologic and otherwise, of the individual case.

12. Mere ligation of the tubes is not sufficient for sterilization. A portion should be resected and the stumps buried to insure success.

Surgical Procedures in Fractures of the Elbow. JAMES G. OMELVENA, Norfolk, Va., *Virginia Medical Monthly*, June, 1921.

After taking up the anatomy and the fundamentals of the various fractures of the elbow-joint, the writer lays stress on the technic of maintaining reduction. With the *x*-ray plates to assist, and the patient anesthetized, the patient's arm is grasped at the seat of the fracture with one hand, the forearm is grasped close to the elbow with the other, an assistant making needed traction on the forearm. When the fragments seem normally approximated by retraction, the forearm is acutely flexed on the arm and retained by a wide strip of adhesive stretching across from just above the wrist to just below the axilla. A wide binder is applied to hold the arm to the chest wall. A smooth pad should be placed in the crook of the elbow and the arm, forearm and hand protected from the chest wall by suitably placed pads. The pulse at the wrist and the amount of swelling determine the acuteness of the flexion. An *x*-ray picture is then made to be sure that reduction is maintained. The flexion is increased as the swelling subsides. One of the chief dangers of elbow injuries is the loss of elbow flexion. Dressing the elbow in acute flexion avoids this. The dressings are removed in ten days.

Present Status of the Treatment of Operable Cancer of the Cervix. W. P. GRAVES, Boston, Mass., *Surgery, Gynecology and Obstetrics*, June, 1921.

Graves comments upon the favorable results of operation when done by skillful surgeons, and mentions Dr. Cobb's startling reports on 60 operations. The value of radium as a palliative agent is accepted. The problem now is whether radium should be used in frankly operable cases—as is openly advocated by those working in large radium centers.

"Conclusions drawn from our personal results must be made guardedly. It may be said that we have not—so far as we know—cured with radium a single case of inoperable cancer of the cervix. It is to be noted however, that this statement is the result of individual experience. It is not equivalent to saying that inoperable cancer of the cervix cannot be cured by radium, for there is evidence to the contrary. . . . . In view of the greater success attained in other clinics than our own, it is also within the range of possibility that some of our own cases now in the so-called 'clinically cured' stage may ultimately prove to have been permanently cured."

In view of the author's unfavorable experiences with radium, and his very favorable operative results, of which he gives statistics, he does not feel justified in substituting radium for radical surgery in cases favorable for operation.

Whatever the ultimate treatment of cancer of the cervix shall be, the general outlook is encouraging, due to the fact of the increased education on the part of the laity and the general practitioner, as a result of which cases are being detected at an earlier stage than formerly.

G. S. REITTER.

Cancer of the Breast. MILES F. PORTER, Fort Wayne, Ind., *The Journal of the Indiana State Medical Association*, June 15, 1921.

All tumors of the breast should be regarded as malignant until it is proven that they are benign. Properly administered, *x*-ray treatment is beneficial and should be resorted to more generally than it is. It is well for the surgeon not to become too attached to any particular plan, but to make himself master of the whole situation and then adopt that operation best suited to the case in hand.

Certain cardinal principles should be remembered:

1. No sacrifice in the way of time, cosmetic results, or utility is too great to make for the cure of the patient, but unnecessary mutilation should be avoided.

2. Properly planned incisions with undermining of the skin and at times mobilizing of the opposite breast will make it possible to close nearly all of these wounds.

3. The posterior thoracic nerve should be preserved.

4. The flap lining the axillary space should be held snugly in the apex by stitches or dressing to avoid subsequent inability to elevate the arm.

5. Careful and complete hemostasis adds to the safety, comfort and convenience of the patient and will frequently do away with the necessity for drainage and allow healing of the wound under the primary dressing.

6. Early use of the arm should be encouraged.

The Treatment of Cancer. FREDERICK BRYANT, Worcester, Mass., *The Boston Medical and Surgical Journal*, June 16, 1921.

Certain known facts are extant regarding cancer. (1) It is neither hereditory, infectious, contagious or communicable. (2) There is an age of greatest susceptibility. (3) The exciting cause is some form of chronic stimulative irritation. (4) Cancer is at first local or regional, and if thoroughly removed while in its incipiency will not return.

(5) Cancer in different parts of the body has come to be regarded as an almost different disease, requiring different treatment, and entailing different prognosis. (6) There is much evidence that certain constitutional predispositions aid and abet the local exciting cause. (7) Cancer increase keeps pace with modern civilization and is more common in the city than in the country. (8) Radiant energy of heat, roentgen rays and radium have a destructive and selectively destructive effect on the cancer cell. Not only early operative measures, but combining surgical therapeusis with radio-therapeusis and all the agencies which have proved therapeutically effectual, is recommended.

The Present Position of Radium in the Study and Treatment of Uterine Cancer. WILLIAM S. STONE, New York, N. Y. *Surgery, Gynecology and Obstetrics,* June, 1921.

Stone states that in the uterus is found the same kind of response of tumor tissue to radiation as in other parts of the body. The embryonal and rapidly growing types are regularly the most responsive: the glandular type more so than the epithelial, and the papillary and less infiltrating type more so than the deeply infiltrating variety. In cervical cases, certain types have been observed—a few cases that correspond to the basal-celled type of epithelioma, and also the so-called plexiform type which is essentially a papillary type and in which lymphnode invasion is late. Both these types are especially susceptible to radium.

From the author's observations in over 400 cases of uterine cancer treated with radium, he offers the present therapeutic position of this agent as follows:

In all recurrences radium produces better results than operation, provided they are not too far advanced and are not so closely related to the bladder or rectum that fistulae or functional disorders will result. Even when the advanced stage precludes the idea of a considerable regression, pain may be relieved, hemorrhage stopped and the progress of the growth materially checked by one carefully adjusted dose. Occasionally cross-firing may be done, either with radium or the *x*-ray.

For all cases of primary uterine cancer, with few exceptions, radium should be regarded as the method of choice.

The so-called borderland cases have become a subject of frequent discussion, but radium has here demonstrated its remarkable value. Its use as an adjunct to operation—instead of a substitute—is to be discouraged. As a prophylactic measure in early cases, its use should be encouraged.

In cases of the cauliflower type, in which there is a bulky necrotic tumor and the cautery is deemed advisable—or has been used—it is best not to follow this with radium.

In cancer of the body of the uterus, the application of radium 1 or 2 weeks prior to operation will materially improve the results that have hitherto been obtained by operation alone.

On account of lymph-node involvement in certain cases of cancer of the cervix, radium cannot entirely supplant the operation in all of such early lesions.

The question of the comparative effects on tumors of large doses for short periods and small doses over longer periods has not been definitely settled and a plea is made for more data on this aspect of treatment. The chief error in the use of radium seems to be in overdosage, with the subsequent disastrous results to the neighboring tissues. A strong plea is made to avoid treatment of primary cases that are too far advanced. G. S. REITTER.

Treatment of Gastric and Duodenal Ulcers With Radium. F. E. PARKE, Stoneham, Mass. *Medical Review of Reviews,* June, 1921

The author states that one of the accepted facts about radium is the power it has of increasing cell metabolism when used in the proper dosage. With this idea in mind, Parke undertook to treat ulcers of the intestinal tract with radium.

He reports 5 cases of gastric and duodenal ulcers, all of which have had uniformly good results. All of the cases were chronic and severe. Some had had hemorrhage and had been operated upon. In all, the pain and hemorrhage ceased promptly. In one, the patient, has been well for 6 years

The method used was as follows:

(a) Rectal feeding until all pain had disappeared from the stomach from a week to ten days, then gradual resumption of stomach feeding, beginning with soft solids.

(b) The constant application over the site of the ulcer of a pad of about 10 microgrammes of radium element.

(c) Four ounces of freshly prepared radium emanation water every 2 hours through the day by the mouth.

(d) 20 c.c. of radio-active sea-water, after the method of Rene Quinton, injected subcutaneously every other day. There was very little discomfort experienced from the withholding of food and the treatment through the whole period was easily bearable. G. S. REITTER.

Further Clinical Studies on the Use of Mercurochrome as a General Germicide. HUGH H. YOUNG, EDWIN C. WHITE, and ERNEST O. SWARTZ, Baltimore, Md., *Journal of the A. M. A.,* July 9, 1921.

Since the publication in 1919 of the preliminary laboratory and clinical study of "mercurochrome-220," this compound has been used extensively in many urologic conditions in the Brady Urological Institute and in other genito-urinary and gynecologic services and dispensaries. The satisfactory results in urologic practice have led to its application in other branches of medicine and surgery in which a deeply penetrating, non-irritating germicide of low toxicity and relatively quick action is desired. As a result of the authors' experience with this drug over a period of two years, early expectations of its great value have been realized. In many cases it has proved effective when other drugs have failed, and there have been cases in which the reverse was true. It is no more a panacea for all urinary infections than is any other disinfecting agent, but it is unquestionably a valuable addition to the comparatively few powerfully germicidal substances which can be applied to sensitive surfaces such as the mucosa. Solutions of from 0.25 to 0.5 are sufficiently concentrated to produce a satisfactory germicidal effect in the urethra and are always non-irritating. Emphasis should be laid on the desirability of using fresh solutions; the solutions deteriorate on standing. In spite of the high test tube germicidal activity of these solutions, the results obtained by local use of these solutions in acute gonorrhea have not been vastly superior to those obtained by the intelligent use of argyrol or acriflavine. The introduction of the water-soluble sodium salt and the abandonment of the use of the alkali-soluble form of the drug is responsible for a diminution in the amount of irritation produced by these solutions.

The authors conclude:

1. Mercurochrome has proved to be a very valuable drug in acute gonorrhea, but the intense stain is a drawback to its use as an injection by the patient. Acriflavine is free from this objection and, although not so good a germicide, is often preferable in acute cases.

2. In chronic infections of the urethra, prostate and vesicles the great value of mercurochrome has been amply proved. It penetrates deeply and may be found in the prostatic secretion several days after posterior instillation.

3. The results obtained in many cases of chronic cystitis are remarkable, long standing infections often clearing up in a few treatments. In some cases which fail to become sterile, constant reinfection of the bladder is found to occur from kidneys or prostate.

4. Mercurochrome is less irritating and produces less reaction in the renal pelvis than silver nitrate solutions, while possessing about equal germicidal powers; but in some cases both drugs should be used alternately, and sometimes silver is better.

5. In some cases of pyelitis, the infection comes from the teeth, tonsils, etc., and sterilization of the pelvis is impossible until the primary focus is cured.

6. Continued use has proved it to be a most satisfactory dressing for venereal ulcerations and buboes.

7. In general surgery, reports indicate that mercurochrome is very valuable in dressing open wounds and sinuses.

8. The germicidal efficiency of the drug in other branches of medicine and surgery has been proved, especially in the treatment of infections of the throat, nose, sinuses, ear and eye and teeth. It is reported to be most efficient in disinfecting the throats of diphtheria carriers.

Singultus. HARRY SCHULTZ DE BRUN, New York, N. Y., *New York Medical Journal,* June 1, 1921.

Hiccough is as important to the surgeon as to the medical man, and as a symptom has been sadly neglected. The subject is classified into (1) simple—due to sudden changes in temperature and transient in character; (2) inflammatory, coming on after an onset of certain inflammatory diseases of the abdominal viscera as gastritis, appendicitis, enterocolitis, suppurative hepatitis, period of discharge, pancreatitis, strangulated hernias, typhoid and cholera, and when inflammation affects the phrenic nerve or there is general nerve debility; (3) irritative, due to acute indigestion or dilatation of the stomach, certain foods, drugs, worms, and to post-operative conditions. The irritative type often occurs in abdominal and chest tumors and in associated gynecological maladies; (4) traumatic, a type seen frequently in the war, following gun-shot wounds of the neck, chest and upper abdomen where the pneumo-gastrics or phrenics have been directly or indirectly injured; (5) specific—as in nephritis, malaria, gout, diabetes, and acute rheumatic fever; (6) neurotic and idiopathic.

The writer after citing some 23 various treatments for the different forms, concludes:

1. Singultus has been known to be the sole cause of death.
2. The symptoms may be classifined as to cause: (a) simple; (b) inflammatory; (c) irritative; (d) traumatic; (e) specific; (f) neurotic; (g) unknown origin.
3. Attacks last from one minute to several months, with or without spasms, during sleep, and with or without remissions.
4. If the condition of the patient permits, always treat the causative factor when found.
5. If physiomechanical and medicinal treatment fails, resort to narcotics and anesthetics.

Infective Arthritis and Allied Conditions. W. H. WILCOX, London, *The British Medical Journal,* June 4, 1921.

Among the etiological factors, sex, age, race, family history, mental stress and debility, trauma and physical stress, exposure to cold, pregnancy and parturition as well as faulty metabolism, rheumatic fever, and infective diseases are all considered from an etiological or causative standpoint. The commonest cause of infection is found to be in connection with teeth sockets. A septic condition of the tonsils, intestinal infections, constitute another leading causative factor. The author, after having discussed these causative factors, morbid anatomy, symptoms and physical signs, states that a careful and complete physical examination should be made in each case to find out any possible source of infection. This should be supplemented by an *x*-ray examination of the teeth, and bacteriological examination of the stools and urine. In pyrexial cases, absolute rest, electric light baths, fomentations, iodine poultices, intestinal antiseptics, among which "dimol," a new antiseptic having 15 times the disinfecting power of phenol are said to be non-toxic in 2 to 4 grains in keratin capsules three times daily, are recommended. Bier's treatment for twenty minutes daily is of value.

In non-pyrexial cases iodin is of particular value. The source of infection as soon as found should be eradicated and be followed by vaccine treatment. In chronic and subacute cases, electric light or radiant heat treatment should be given daily, and followed by ionization with iodine ions, a two per cent. solution of lithium iodide being placed on the lint of the kathode. Ionization with salicylic acid ions, and diathermy is valuable in cases in which pain predominates. After the removal of the infective cause and when there are no signs of active inflammation, massage and movements of the bones to prevent the formation of adhesions, are indicated. Adhesions limiting the motion of the bone should be broken down under an anesthetic. The diet should be chiefly liquid, and of high nutritive value. Milk, cream, eggs, unheated juice of fresh oranges or lemons, fresh fruits or vegetables, fish, chicken and meat may be given according to the digestive capacity of the patient, along with general tonics.

The Technic of Administering Local Anesthesia. S. R. MAXEINER, Minneapolis, Minn., *The Journal-Lancet,* June 15, 1921.

Novocain is thoroughly effective and the safest local anesthetic available today. It may be used almost *ad libitum* if properly administered. Intravenous administration should be avoided. A tourniquet or adrenalin add to the duration of the anesthesia, but adrenalin solution is dangerous in the presence of a terminal circulation. Edematization of the field does not interfere with primary healing, and is the best and simplest method of producing anesthesia. Making secondary wheals is important, and when used in the abdomen all layers can be infiltrated in six minutes. Intraneural injections carry a larger percentage of failures and demands greater skill than paraneural injections or infiltration block. In the last method, a large amount of a more dilute solution may be deposited in proximity to the nerve. In circumferential infiltration, the operative field is circumscribed. This method is depreciated by the writer on account of the larger amount of solution required. In caudal anesthesia, the anesthetic is introduced through the terminal sacral foramen and is extradural. If successful, the anesthesia is excellent for work on the perineum and in the pelvis. Splanchnic anesthesia is rapidly gaining favor for abdominal operations.

Present Problem of Local Anesthesia. A. F. BRATRUD, Minneapolis, Minn., *The Journal-Lancet,* June 15, 1921.

Of the various anesthetics, quinin urea hydrochlorid used in 0.5% solution is very satisfactory, except in the skin, where it is apt to cause sloughing. It is preferable for prolonged anesthesia. Novocain is used in 0.5 to 4% in either normal saline solution or Ringer's solution. Apothesine is not meeting all that was claimed for it. Saliginen has been giving good results, and like novocain, produces little toxicity. As much as 300 c.c. of 0.5% solution of novocain can be used in one case. Gentleness and skill in handling the tissues are essential and gained only with experience. Suggestive remarks as to fear or pain by nurses, attendants, or spectators may change the attitude of a satisfied patient into one anticipating pain, and so cause complaint from most trivial noises or the slightest pressure. Narcotics are given as a rule, the morning of the operation, usually morphine, gr. 1-6 and scopolamin, gr. 1-200, which is not too much a dose to repeat in case of necessity.

The periosteum, perichondrium, and synovial membranes are very sensitive, bone insensitive, and bone marrow slightly sensitive. In the abdomen the parietal peritoneum is very sensitive, whereas the visceral peritoneum is not sensitive to pain. There is less manipulation and trauma of the tissues with the gentle technic necessary for the successful performance of major surgery under local anesthesia. Infection is not higher with local than with general anesthesia.

The author concludes:

1. The subject of anesthesia, local as well as general should be taught in all medical schools.
2. The disadvantages, such as time, infection, psychic factors, etc., are more imaginary than real.
3. Careful attention to details, better knwoledge of anatomy, and improved technic are essential to success.
4. The post-operative course is a better convalescence in a shorter period of time, and complications are fewer.
5. Limitations of the field should be known, and combined anesthesia should be used as soon as there is a contraindication to any further work under local anesthesia.
6. It is not the well-organized clinics with trained anesthetists that should have knowledge of this subject, but it is in the rural districts and hospitals without consultant or visiting anesthetists that it is important.
7. The future of local anesthesia depends upon the enthusiasm of the surgeon, knowledge of the subject, and, with these, the widening of the field of usefulness.

Sea Bathing and the Ear. ALEXANDER ROVINSKY, New York, N. Y., *Medical Record,* July 2, 1921.

During the bathing season ear affections gain markedly in frequency, due, in the opinion of the writer, to the entrance of sea water with its contaminating contents into the middle ear. The entrance of this water is through the mouth or nose into the posterior pharynx and thence through the Eustachian tubes, caused by a sense of choking, uncontrollable coughing, and an impulse to swallow. A day or two after bathing patients complain of discomfort, slight pain, and possibly itching in the ear; this latter stimulates scratching the respective spot either with the bare finger, or if situated

deeper, with pencil point, match, toothpick, or what not. As a result, the condition is aggravated and the pain becomes more and more marked. If the hyperemia, infiltration, or abscess is near the meatus of the external auditory canal, the pain is less, but the tenderness severe. In pronounced cases the pain may be felt all over the side of the head with pain behind the ear, simulating mastoiditis. People who suffer with any defect that interferes with normal breathing such as marked deflection of the septum, hypertrophied turbinates, tonsils, adenoids, or any other retropharyngeal growth, should be warned against the possibility of ear affections during sea bathing, and the least appearance of inconvenience or pain calls for immediate consultation with the family physician. Those predisposed to the formation of cerumen in the ear should be instructed to clear the ears of the same before bathing, as the sea water is apt, instead of disintegrating the ceruminous mass, to cause it to swell by absorption, and thus cause trouble. Those suffering from acute middle ear disease or active chronic purulent affection should be prohibited from sea and river bathing altogether; this applies with even greater force to sufferers from any labyrinthine affection. Patients with chronic catarrhal ear disease, while permitted to indulge in bathing, should be warned against staying in the water too continuously, and against too strenuous swimming and especially diving; instead of diving, they may be advised to duck with the nostrils and ears obstructed with their thumbs and index fingers of the respective side. Those suffering with latent or periodic purulent otitis should have their ears stuffed with plugs of absorbent cotton dipped in albolene or olive oil, and wear a closely fitting rubber cap over their ears, avoid diving or ducking and always keep above water; immediately after bathing remove plugs and dry canal. Any appearance of pus or the least pain calls for immediate cessation of bathing and for medical advice. Those predisposed to furunculosis of the external canal should protect the canal with some borated vaseline or zinc oxide salve.

A danger which, though it may appear far fetched, is nevertheless within the domain of the possible, is injury to the drum when the bather exposes his side to the onrushing wave, and the ear is thus struck sideways with considerable force. It is a well known fact that in certain class of patients syringing of the ear, even with warm water (as it should properly be done), not to speak of cold, is apt to produce dizziness and even fainting, no matter how mild the force of the injected stream. It stands to reason that when a volume of cold water strikes the drum with sufficient force, it is apt to produce dizziness and even unconsciousness which may be followed by drowning.

A Report of Fifty Consecutive Cataract Operations by the Smith-Indian-Fisher Method. F. J. Pratt, J. A. Pratt, Minneapolis, Minn., *Minnesota Medicine*, June 1921.

Until the beginning of the eighteenth century all opacities (apparent or real) of the optic media were included under the term "cataract." Beard's classification is given as follows:

1. According to the age at which it appears: congenital, juvenile, adult, senile.

2. According to the cause: spontaneous, traumatic, symptomatic, albuminuric, arterio-sclerotic, chemic, thermic, heat, cold, electric, diabetic, glaucomatous malarial, phosphaturic, naphthalmic, spasmodic, ergotinic, ciliary cramp, tetanic, thyroidismic, uveitic.

3. According to consistency: liquid, soft, semi-hard, hard, ossific, calcific.

4. According to color: white, gray, greenish, amber, black, blue.

5. According to extent: total, partial, nuclear, perinuclear, cortical, capsular.

6. According to the seat and disposition of the apacities: central, nuclear, perinuclear, anterior, cortical, posterior cortical, anterior polar, equatorial, disseminated, punctate, zonular.

7. According to the presence or absence of complications: simple, complicated.

8. According to the period of development: incipient or commencing, immature, mature, hyper-mature or regressive.

Almost all pathologic changes that affect the nutrition of the eyeball are etiological factors. Herbert divides the stages of development of the cataract into (1) incipient, (2) unripe, (3) ripe, or mature, (4) over-ripe. With the Fisher operation it is not necessary to wait for the cataract to get "ripe." The success of the operation and the after-results depend on several factors: first, the preparation of the patient; second, the patient on the operating table; third, the operator and his assistant; fourth, the complications during the operation; fifth, the behavior of the patient after the operation; sixth, the after inflammation; seventh, the clearness of the pupil; eighth, the condition of the vitreous and fundus.

The resultant vision in 50 cases of completed Smith-Indian-Fisher operations were as follows:

10	cases	20-20
15	"	20-30
6	"	20-40
6	"	20-50
2	"	20-60
1	"	20-70
1	"	20-80
1	"	20-100
1	"	20-150
1	"	20-200
1	"	3-200
5	"	not refracted

Book Reviews

Surgery, Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. *Volume VII.* Royal octavo; 855 pages; 359 illustrations, 17 of them in colors. *Volume VIII.* Royal octavo; 960 pages; 657 illustrations; 12 of them in colors. Philadelphia and London: W. B. Saunders Company, 1921.

Keen's "Surgery" was completed in 1913 by the publication of its sixth volume. In the eight subsequent years so much has been added to surgery, so many developments has the recent war brought about in the treatment of wound infections and of injuries of the bones, joints, bloodvessels, face, thorax, brain and nerves, that the venerable and venerated Nestor of American surgery has thought it proper that these should be incorporated in the splendid work that bears his name.

Those who are familiar with the first six volumes will not need to be told what to expect in these two large supplemental volumes. They constitute not merely an admirable exposition of war surgery in all its phases, including its application to the surgery of peace, but also an exposition of the recent progress in other surgical fields, as for example, the thyroid gland (C. H. Mayo, L. B. Wilson, E. C. Kendall), the hypophysis (A. W. Adson), the Gasserion ganglion (C. H. Frazier), the prostate (Hugh Young), gonorrhea in females (C. C. Norris), anesthesia (Boothby, Booth, Harris, Cabot), radium therapy (Duane and Greenough), tropical surgery (McCaw), etc., etc. The authorship of these two volumes is chiefly American, but partly Canadian (Adami, Armstrong), English (Jones, Hey Groves, Thorburn, Cuthbert Wallace), and French (Eugene Darcissac, who has contributed the chapter on The Role of the Dental Surgeon in the Treatment of Fractures of the Jaw).

A separate Index Volume for the entire work has also been published.

Studies in the History and Method of Science. Edited by Charles Singer. *Volume II.* Imperial octavo; 559 pages; 55 plates and many illustrations. Oxford: The Clarendon Press, 1921.

This volume is even more interesting and fascinating than the remarkable Volume I, printed in 1917. We are not surprised by the statement of the editor that the issue thereof was soon exhausted. It was a novel venture in the recital of the history of science and nothing was left undone to give distinction to the publication. Both volumes are truly noble

in character, in material and in the manner of execution. The articles are without exception solid, written with a fine scholarliness and historical perception, and the choice of subjects is unhackneyed, in many instances consisting of virgin material.

Of the fifteen articles in this volume, seven are of direct medical interest; the remainder ought to interest any physician who has any leanings to general culture. The opening article of over 100 pages, by the editor, Dr. Singer, on Greek Biology and its Relation to the Rise of Modern Biology, is a remarkable account of the bases of the Aristotelian biological system, some Aristotelian zoological observations and their modern counterparts, the botanical knowledge of the ancients and the botanical results of Theophrastus compared with those of the early modern botanists. It is richly illustrated, both in black-and-white and in color. The article on Roger Bacon and the State of Science of the Thirteenth Century, by Robert Steele, is a brilliant study of one of the most remarkable minds the world has ever known and the historical background of his time. The modernity of Roger Bacon's mind is an eternal wonder. The article on Leonardo the Anatomist, by H. Hopstock, is an elaborate study of the famous illustrations and manuscripts preserved at Winsor, and will prove highly informative to those who have had only a vague knowledge that Leonardo dabbled in anatomy. After learning what Leonardo knew of anatomy, one wonders how profoundly his work might have influenced the development of this subject had these manuscripts seen the light of day earlier. Leonardo was no amateur in anatomy. He knew many things that even Vesalius was ignorant of, and his knowledge was obtained through first-hand observations. In the fine account of the Asclepiadae and the Priests of Asclepius, by E. T. Withington, he tries to show that Hippocratic medicine did not originate in the temples of Asclepius or the healing shrines of ancient Greece, but represents the summary of an art that had existed probably centuries before the birth of Hippocrates, the physician. The History of Anatomical Injections, by F. J. Cole, is a very readable and interesting story. It is surprising to know that the first account of anatomical injection in literature dates back to Berengarius in 1521. The article on Four Armenian Tracts on the Structure of the Human Body, by F. C. Conybeave, is a translation of ancient manuscripts in the British museum. It affords quaint and curious reading.

Space forbids entering into any sort of critique in regard to the remaining contents of this volume, but we cannot help mentioning the excellent account of the scientific works of Galileo, by J. J. Fabie, and that on The Invention of Optical Apparatus, by Singer.

In the preface, Dr. Singer calls attention to the increasing spread of interest in the history of medicine. He is certainly responsible to a considerable degree for this, not only through his own writings but through the publications of such volumes as this.

The Surgical Clinics of North America. *Volume* 1, *Number* 1, Philadelphia Number. With an Introduction by W. W. KEEN, M.D., LL.D., Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. *Volume* 1, *Number* 2, New York Number. Octavos; each about 250 pages; illustrated. Philadelphia and London: W. B. SAUNDERS COMPANY.

The publication of well selected clinical lectures and demonstrations, well edited and adequately illustrated, as are these, serves a very useful purpose. It brings the clinic to the doctor; it gives to him who has not been able to hear it the opportunity to read it; and such reading supplements and vivifies the more condensed and didactic teaching of his textbooks.

We have read much of the first two numbers with interest and with profit. The Philadelphia number contains clinic lectures by Charles Frazier (an excellent one on sensory root section and alcohol injection for trigeminal neuralgia), J. C. Da Costa, A. P. C. Ashhurst, John G. Clark, John B. Deaver, John H. Gibbon, John H. Jopson, George P. Muller, Charles F. Nassau and T. Turner Thomas. The New York number contains clinics by Fred H. Albee, John F. Erdmann, Charles L. Gibson, Leo Buerger, Willy Meyer, John Hartwell, Charles G. Heyd, Walton Martin, Eugene Pool, F. B. St. John, Byron Stookey, Allen O. Whipple and Kenneth Johnson.

T. Turner Thomas, who has insistently claimed that brachial birth palsies arise from injuries to the shoulder (capsular tears) will find no comfort in the here recorded clinics of Ashhurst and of Stookey.

The International Journal of Gastro-Enterology. *Volume* 1, *Number* 1, New York: July, 1921.

Dr. Angelo L. Soresi, a New York surgeon whose frequent contributions to current medical literature exhibit an original and fertile mind, has established a new journal, of which he is the editor and, apparently, the publisher. The first number, which appeared last month, is attractive in type, paper and execution of the numerous illustrations, and contains excellent articles by representative men dealing with the physiology, surgery and medicinal treatment of affections of the stomach and intestine. As its name implies, the journal is intended to be international in character; some of the matter in this first number is in French, some in Italian, but most of it is in English. The journal has other unusual features, two of which seem especially worthy of note: Following each article are "commentaries" thereon by competent colleagues, selected by the editor for the purpose; these partake of the nature of "discussions", as at society meetings. Contributions reporting discoveries or innovations in methods that have not been long enough tested to establish them will be published, presumably at the editor's discretion, under "Preliminary Notes"; this is intended to encourage investigation and establish priority, as a protection to the author and to indicate the perhaps still experimental character of the contribution, as a protection to the reader. Hereafter there will be published with each article an abstract of its contents in the other chief languages. The journal contains no advertising.

Dr. Soresi has done very well indeed with his maiden issue, and we wish him success in his ambitious venture. We would call his attention to certain minor faults that he can easily correct: "The Table of Contents" bears no page numbers; there is no statement concerning the intervals at which the journal is to appear; there is no publication address other than that of the editor; the names of authors of original articles appear in light type, while the authors of "commentaries" are unduly favored with larger, heavy type!

Medical Notes. By SIR THOMAS HORDER, M.D. (Lond.), F.R.C.P. (Lond.), Physician, with charge of Out-Patients, to St. Bartholomews Hospital. Duodecimo; 112 pages; London: HENRY FROWDE, Oxford University Press; HODDER & STOUGHTON, 1921.

A very interesting compilation of notes and comments originating in the practical experiences of a capable observer in hospital wards and out-patient departments. The general type of these notes is similar to that of the "Surgical Suggestions" appearing in this Journal.

Books Received

Practical Chemical Analysis of Blood. By VICTOR CARYL MYERS, M.A., PH.D., Professor of Pathological Chemistry in the New York Post-Graduate Medical School and Hospital. Octavo; 121 pages; illustrated. St. Louis: C. V. MOSBY COMPANY, 1921.

Progressive Medicine. A Quarterly Digest. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia; Physician to the Jefferson Medical College Hospital, etc. Assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia; Ophthalmologist to the Frederick Douglass Memorial Hospital and to the Burd School, etc. *Volume II.* Octavo; 399 pages; illustrated. Philadelphia and New York: LEA & FEBIGER, 1921.